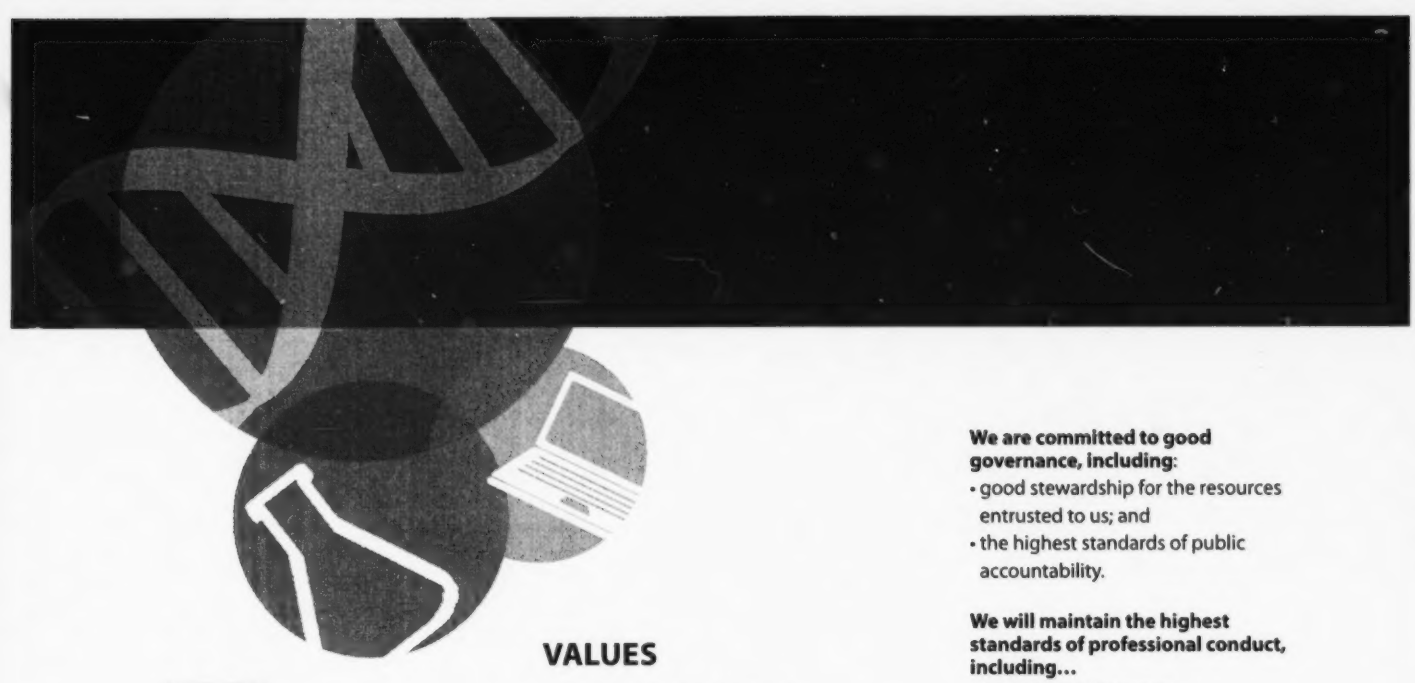
Building a healthy Saskatchewan through health research

SUSTAINING growth

2009-2010 Annual Report

SHRF
SASKATCHEWAN HEALTH RESEARCH FOUNDATION

www.shrf.ca



VISION

Building a healthy Saskatchewan through health research

MISSION

The Saskatchewan Health Research Foundation contributes to a healthy province by funding and promoting excellence in health research, promoting the benefits of health research, and enhancing capacity, including securing funds to support excellent research and researchers.

VALUES

We believe health research:

- is the ethical search for truth, knowledge, and understanding about human health;
- is an investment that leads to benefits for all Saskatchewan residents in many areas including health, education and the economy;
- includes both basic and applied research; and
- encompasses many dimensions including biomedical science, clinical investigation, health services and systems research, and research into the determinants of population health.

We are committed to good governance, including:

- good stewardship for the resources entrusted to us; and
- the highest standards of public accountability.

We will maintain the highest standards of professional conduct, including...

- integrity and honesty;
- respect for diverse perspectives and approaches; and
- clear, open, honest and timely communication.

We will work co-operatively and collaboratively with others to:

- achieve mutual goals related to advancing health research in Saskatchewan; and
- ensure research findings are shared and used as widely as possible.

We strive for excellence and innovation in all our endeavours

Mandate

As defined in *The Saskatchewan Health Research Foundation Act* (2002):

1) Seek and receive funding from government and non-government sources for the advancement of research.

2) Encourage and facilitate research in health sciences; the health-related social sciences and other health-related fields of study.

3) Assist the Minister of Health to develop a provincial strategy for research into matters associated with the health sciences, the health-related social sciences and other health-related fields of study.

4) Provide funding to persons and agencies that are conducting or proposing to conduct research projects that are consistent with the provincial strategy.

5) Disseminate information to members of health-related professions and to the public respecting the objects of the Foundation, the research that the Foundation supports, the results of that research and conclusions drawn from that research.

MESSAGE TO THE MINISTER

The Honourable Don McMorris
Minister of Health
Legislative Assembly
Regina, SK S4S 0B3

Dear Mr. McMorris,

I am pleased to submit for your consideration the annual report of the Saskatchewan Health Research Foundation for the fiscal period April 1, 2009 to March 31, 2010.

Respectfully submitted,

Terry Baker
Board Chair

TABLE OF CONTENTS

2 Board Chair's Message
3 Board of Directors
4 CEO's Message
5 Health Research Strategy
6 Funding Programs
16 Partnership Programs
20 Peer Review
22 Supportive Environment
23 Measuring Impact
27 Knowledge Translation
29 Dissemination and Promotion
31 Financials

TERRY BAKER

BOARD CHAIR'S MESSAGE

Renewal and growth

Over the past 10 years, our province has experienced a tremendous renewal and expansion in our research infrastructure, much of it directly linked to health research.

From the University of Regina's Centre for Kinesiology, Health and Sport and new Laboratory Building expansion, to the construction cranes currently dotting the skyline over the University of Saskatchewan, these very tangible commitments to the future represent a bold and confident investment by our government on behalf of the taxpayers of Saskatchewan.

Terry Baker, *Board Chair*

Compared to these major projects, our responsibility at the Saskatchewan Health Research Foundation is much more modest in terms of dollars – a little over $6 million annually. This critical public investment in our science and innovation economy acts as a catalyst, helping launch research careers, build highly productive research groups, and attract and keep top-quality scientists here in Saskatchewan. It is the Foundation's role to manage these dollars prudently to ensure taxpayers realize maximum returns on their investment in terms of benefits to the people of this province.

One way the Foundation does this is to lever this public investment into more dollars to fuel the health research enterprise. This has always been part of our core mandate, but in recent years we've substantially stepped up our efforts to engage volunteer funders, charitable foundations, and other not-for-profit organizations to pursue health research in areas of common interest.

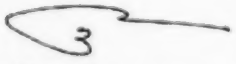
An example is the new Saskatchewan Research Chairs program. This year, by partnering with the Alzheimer Society of Saskatchewan, we were able to award the first of these five-year, million-dollar Chairs. A second partnership, this time with the Heart and Stroke Foundation of Saskatchewan, has created another Chair opportunity, and we are actively pursuing more.

SHRF is undergoing a time of renewal as well, with five new board members: Sylvia Abonyi, Ray Dean, Heather George, Louise Greenberg, and Tom Porter. It's an exciting time as our new board members bring their expertise and ideas to the table and we get used to working together. These new members replace those who completed their terms last year: Greg Marchildon, Pauline Rousseau, Murray Knuttila, and Kevin Veitenheimer.

It is with great sadness that we bid farewell to one of our former board members, Louis Delbaere, who died suddenly in October. Louis was a mentor, colleague, friend, and a leader in our health research community. He was one of our best, and we will miss him.

As we move forward, our priority as a Board is to provide the maximum share of the dollars available to the front line: our research community. Provincial resources administered by SHRF provide the incubator funding to build capacity, attract and retain top quality students, leverage external capital, and ultimately foster a research-friendly environment here in Saskatchewan.

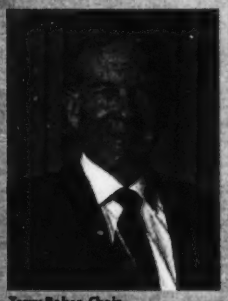
Investment in health research, whether it is basic biomedical work, clinical research, or aimed at improving how we deliver health care, provides long-term dividends to Saskatchewan people. We remain convinced that the knowledge borne of health research today will help us create and maintain a healthier population and reduce health care costs in the future.



Terry Baker
Board Chair

* Figures in brackets indicate the number of meetings each SHRF board member attended in the 2009-2010 fiscal year. There were a total of five meetings held.

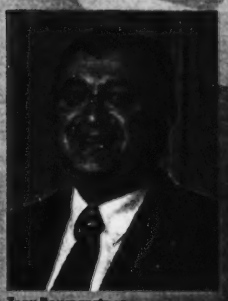
BOARD OF DIRECTORS



Terry Baker, Chair
(Chair from June 10, 2009)
Fauser, Denzil (5)

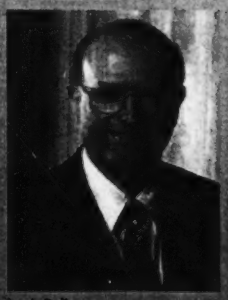
Louise Greenberg, Vice Chair
(from June 10, 2009)
Saskatchewan Ministry of Health (4)

Sylvia Abonyi
(from June 10, 2009)
University of Saskatchewan (2)



Tony Bazsmgartner
(until March 22, 2010)
Enterprise Saskatchewan (1)

Raymond Dean
(from June 10, 2009)
Viterra (3)



Louis Delbaere
University of Saskatchewan (0)
(until June 10, 2009)

Heather George
(from October 7, 2009)
Saskatchewan Ministry of Advanced Education, Employment and Labour (1)

John Gordon
University of Saskatchewan (3)

Andrew Greenshaw
University of Alberta (4)

Shanthi John
University of Saskatchewan

Murray Knuttila
(until June 10, 2009)
University of Regina

Greg Marchildon
(from June 10, 2009) (1)
University of Regina

Gordon McKay
Pharmasyn Inc (1)

Cary Neudorf
Saskatoon Health Region

Pauline Rose
University of Saskatchewan

Jim Toth
Saskatchewan Ministry of Advanced Education, Employment and Labour

Kevin Wilson
Saskatchewan Ministry of Advanced Education, Employment and Labour

JUNE BOLD

CEO'S MESSSAGE

Sustaining growth in challenging times

The high point of 2009-10 was our new Saskatchewan Research Chairs Program. Launched in 2008, the program logged several milestones this past year – the first partnership, the first competition, and the first award.

With the Alzheimer Society of Saskatchewan, we were very pleased to create and fund the first $1 million Saskatchewan Research Chair – in Alzheimer's Disease and Related Dementia. After a peer-reviewed competition, this Chair was awarded to Dr. Darrell Mousseau at the University of Saskatchewan, who will be studying possible links among depression, its treatment, and Alzheimer's Disease (see p. 17 for more). This Chair will provide funds for salaries, research activities, and trainees.

(l-r) Lynn Nastiuk, *Executive Assistant,* Trina Evitts, *Funding Programs Manager;* Patrick Odnokon, *Impact Analysis Manager;* Pamela Riffel, *Administrative Assistant;* June Bold, *CEO;* Deborah Fortosky, *Director of Finance and Operations;* Irene Blum, *Accountant;* Michael Robin, *Communications Manager;* Karen Glazebrook, *Research Officer;* D'lee Johnson, *Administrative Assistant.*

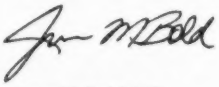
We are now calling for applications for the Saskatchewan Research Chair in Heart and Stroke, thanks to a partnership with the Heart and Stroke Foundation of Saskatchewan. Candidates must have a record of research excellence and be committed to knowledge generation and sharing.

As resources permit, we will create other research chairs that focus on pressing health issues for Saskatchewan. Our goal is to have 10 chairs, so securing additional resources for this program is a top priority. We will also need more resources to meet general growing demand for our programs. We expect this growth to continue in the coming years, as key university-based infrastructure projects come to fruition, triggering growth in health research capacity.

From SHRF's establishment in 2003 to 2009, our revenue grew 10 per cent, allowing us to sustain our core programs and add our Saskatchewan Research Chairs Program. This growth came from increased government allocations and partnerships. As we head into 2010, though, we face a 14 per cent reduction. There were tough choices to be made in the 2010 provincial budget and SHRF was of course not alone in experiencing a reduction. Its impact will be felt in our operations and our programming. All our competitive programs will be affected, except for those where matching funds are involved. The Health Research Group Grant Program will see the biggest impact, with a reduction this year and no competition planned in the following year. Over the years, we have appreciated the provincial government's support, and we look forward to a future renewed investment in health research and innovation.

The provincial *Health Research Strategy*, a 10-year vision for strengthening health research in Saskatchewan, reached its fifth anniversary in 2009. With the guidance of an expert panel, we are leading its mid-term evaluation on behalf of the Ministry of Health and anticipate sharing the findings with stakeholders in the coming months. Please watch our website for developments.

There were many other highlights to celebrate in 2009-10. Among them was the fifth Saskatchewan Health Research Foundation Achievement Award, given in recognition of research excellence and achievement. Congratulations to Dr. Nazeem Muhajarine, 2009 winner! To read about his work, please see p. 26. We are proud to support researchers of this calibre and to facilitate the creation and sharing of new knowledge that benefits the people of Saskatchewan and many others. I hope you enjoy reading about Saskatchewan's talented researchers and their achievements throughout this report.



June M. Bold, MSc
Chief Executive Officer

Saskatchewan's *Health Research Strategy*

A Vision to Strengthen Health Research for Saskatchewan People

The provincial *Health Research Strategy* is a 10-year vision to strengthen health research in Saskatchewan and ensure research leads to benefits for citizens. It was released by the Minister of Health in 2004 after province-wide consultations in the previous year.

Two key messages came to the fore from these consultations: the need to focus research resources and energies toward areas critical to the health and well being of Saskatchewan people; and the need to build upon our current strengths and comparative advantages in health research.

To these ends, the Strategy is organized into four major themes: advancing priority areas, applying what we learn, building capacity, and tracking progress and impact.

Under the first theme, five health research priority areas are identified:

a. Health needs of specific populations, particularly Aboriginal people and seniors;

b. Health systems and policy research, with emphasis on human resources; quality improvement; primary care, mental health and addictions; innovative delivery models; and rural and remote health service delivery;

c. Determinants of health status, including early childhood development and the prevention and underlying causes of chronic and lifestyle-related disease (particularly diabetes, obesity and smoking);

d. Public health, including infectious diseases, water safety and food safety; and

e. Synchrotron-based health research.

While the Strategy designates the Foundation as the lead agency for implementation, its success depends on collaboration and commitment among many agencies and individuals in Saskatchewan. Working with our many partners, we have made considerable progress, as you will read throughout this report. The table on the following page highlights our progress on the Strategy during 2009-10 and outlines plans for 2010-11.

Saskatchewan's Health Research Strategy: Progress and Plans

Strategic Themes	Looking back at 2009-2010... *Actions*	Looking ahead to 2010-2011... *Actions*
1. Advance Saskatchewan's health research priority areas	• Awarded the first SK Research Chair, in partnership with the Alzheimer Society, and defined a new chair with the Heart and Stroke Foundation • Allocated funding for priority areas - 50% in fellowships and establishment grants and 100% in groups and chairs • Partnered with CIHR's Institute of Health Services and Policy Research on collaborative grants in Saskatchewan that target health systems research	• With community partners, define at least one more SK Research Chair in priority areas, as resources permit • Continue emphasis on health research priority areas, including an assessment of growth in those areas • With partners, refine directions for strengthening the research priority area of Aboriginal peoples' health
2. Foster the exchange and application of health research knowledge	• Continued having researchers address knowledge translation in funding applications and reports, as relevant to their field • Supported conferences and workshops that focus on sharing and using research knowledge (Research Connections Program) • Continued sharing our *Health Research in Action Framework*, a guideline for building capacity to share and use health research	• Continue emphasizing knowledge translation in all programs, activities, reporting and partnerships • Continue Research Connections Program and explore other mechanisms for strengthening knowledge translation capacity • Encourage use of the *Health Research in Action Framework* for planning and evaluating strategies to build knowledge translation capacity
3. Strengthen Saskatchewan's health research capacity	• Participated in provincial working groups on ethics review harmonization and on improved access to health information for research and evaluation • Supported the Sask-CIHR Regional Partnership Program (RPP) to build capacity and advance priority areas • Supported key infrastructure initiatives: the Research Data Centre at the U of S and the Saskatchewan Directory of Health Researchers • Expanded Health Research Week activities to showcase and recognize excellent health research being done in SK	• With provincial partners, strive to create a more supportive health research environment, exploring key areas such as data access and clinical research • As resources permit, support matching programs to increase federally funded research activity in SK • Complete linking of the Saskatchewan Directory of Health Researchers to the Directory of Researchers (a CIHR-led partnership) • Continue to facilitate health research and showcase SK success and achievement in health research
4. Implement the Health Research Strategy and track progress	• Initiated mid-term (five-year) evaluation of the Strategy, on behalf of the Ministry of Health, enlisting an external contractor and an expert panel • With national partners, began developing common indicators for return on investment in health research • Began implementing a Balanced Scorecard approach to measure outcomes and impact of SK's health research investment	• Complete the mid-term evaluation of the Strategy and work with the Ministry of Health and others to implement recommendations that will shape the next five years • Continue tracking and reporting on outcomes and impact of health research funding in Saskatchewan • Pursue additional resources and partnerships to fulfill the Strategy's vision of a vibrant health research sector in SK

Our funding programs are important tools to help us fulfill various aspects of our mandate and to contribute to the themes outlined in the provincial *Health Research Strategy*. These include advancing health research in strategic priority areas, sharing and using health research (knowledge translation), and building health research capacity.

FUNDING programs

THIS SECTION:

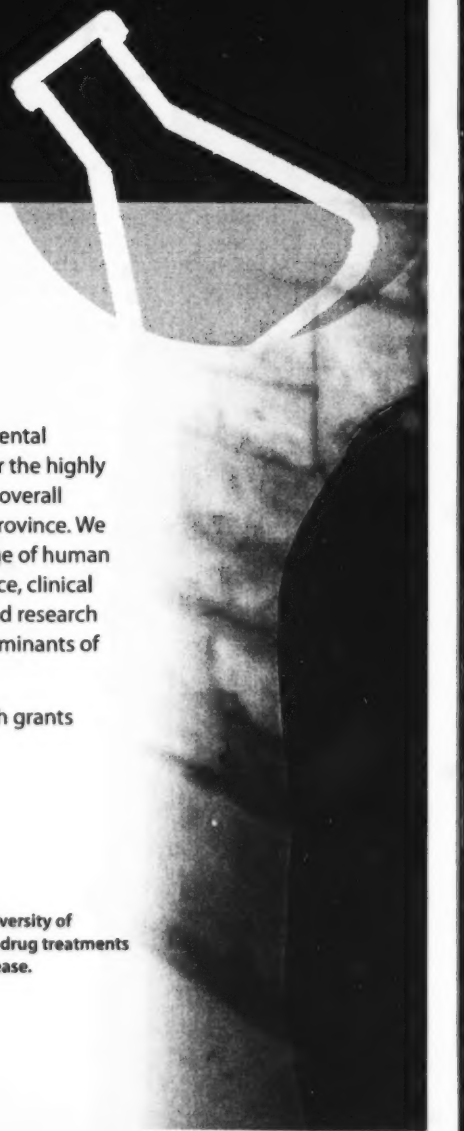
- provides an overview of all grants and awards awarded (see Table 1);
- describes funding programs offered in this fiscal year; and
- lists recipients for each of the programs.

Further information about our programs, policies, eligibility criteria and submission requirements for all programs is available in our annual *Awards Guide* and posted on our website. The website also carries competition results and details about each grant, including funding amounts and easy-to-read project summaries.

SUPPORTING SASKATCHEWAN'S HEALTH RESEARCHERS

SHRF funding programs have a strong developmental focus, helping Saskatchewan researchers to enter the highly competitive national scene and contribute to an overall supportive health research environment in the province. We continue to encourage and support a broad range of human health research including basic biomedical science, clinical research, health services and system research, and research into the cultural, social, and environmental determinants of population health.

Our Board approved $3.9 million for new research grants and fellowships in 2009-10.

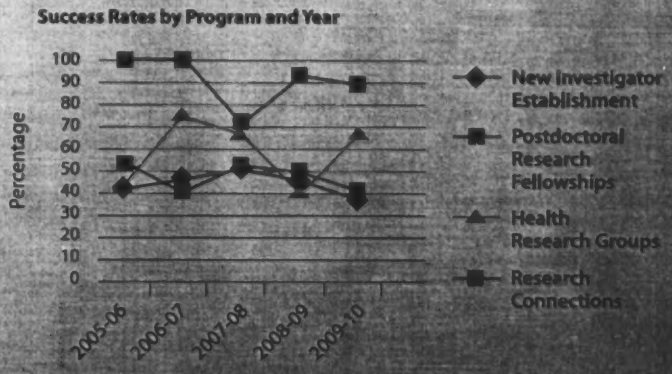


Dr. Jennifer Jones at the University of Saskatchewan is evaluating drug treatments for inflammatory bowel disease.

Table 1: SHRF Applications Received, Recommended, and Awarded 2009-10

SHRF Program	Received		Recommended		Awarded*		
	No.	$	No.	$	No.	Term	$
Postdoctoral Research Fellowships	17	1,700.00	9	900,000	7	2 yrs	**700,000**
New Investigator Establishment Grants	28	2,106,046	17	1,304,444	10	2 yrs	**769,668**
New Investigator Equipment Grants	15	381,543	11	295,217	8	n/a	**222,181**
Research Connections Grants	18	104,952	16	60,075	16	n/a	**60,075**
Health Research Groups							
Phase I	2	60,000	1	30,000	1	2 yrs	**30,000**
Phase II	3	895,207	2	595,207	2	3 yrs	**595,207**
Phase III	1	1,500,000	1	1,500,000	1	3 yrs	**1,500,000**
TOTAL	**84**	**5,049,448**	**57**	**4,684,943**	**45**		**3,877,131**

* Awarded amounts are for the full term of the grant (see also Grant Selection Process section).



New Investigator Establishment and Equipment Grants

These grants provide up to $40,000 per year for two years to university faculty who are new or newly resident in Saskatchewan to help them establish independent health research programs within the province, and achieve the research productivity necessary to obtain longer term and more substantial funding from national and other external agencies. Recipients may also apply for New Investigator Equipment Grants of up to $30,000 over a period of six months to acquire major equipment essential to their research that is not available through other means.

FUNDING PROGRAMS

Recruiting the body's own defences to battle HIV

Those living with HIV must take a plethora of medications that attempt to control the virus and prevent it from developing into full blown AIDS – acquired immune deficiency syndrome.

It's a deadly game of chemistry and viral counter-attack. People living with HIV (human immunodeficiency virus) must switch medications often as the virus develops resistance. So far, the best modern medicine can achieve is a holding action, with the virus poised to attack again as soon as it can.

But what if there was a way for the body to fight off the virus naturally? Dr. Linda Chelico, a researcher at the University of Saskatchewan, thinks this may be possible.

"There are only so many different combinations we can come up with for anti-virals to combat resistance," Chelico says. "If the body is able to naturally fight the HIV virus, it is more likely that the virus won't develop a resistance to it like other medications."

Chelico is studying a human enzyme called APOBEC3G that can suppress replication in certain strains of HIV. Discovered in 2002, this natural human protein can mutate the HIV genome and cause the virus to die. Unfortunately, HIV currently degrades this protein.

Dr. Chelico hopes through her research to better understand the APOBEC3G protein in order to develop therapies to manage HIV better.

While she says HIV sufferers may still have to take medication to manage their HIV, their bodies will also be fighting it on their own. Eventually, if a drug is developed that can help the APOBEC3G protein function properly, a way might be found to harness the immune system's own resources to eradicate HIV entirely.

Research Spotlight:
LINDA CHELICO,
BIOMEDICAL NEW INVESTIGATOR AND EQUIPMENT

Dr. Linda Chelico is working to find a way to recruit the body's own defences to help fight off HIV.

Iron and creatine: a prescription for aging?

We've all heard about the benefits of exercise, but can it help slow the effects of aging?

Dr. Darren Candow, Assistant Professor in the Faculty of Kinesiology and Health Studies at the University of Regina, thinks it's an idea worth exploring.

Candow is working on a project that combines creatine supplements and resistance training – a common combination for many athletes. Creatine, a naturally occurring substance found in red meats and seafood, may have the potential to enhance quality of life and reduce health care costs related to aging.

"As we age, we experience a reduction in muscle and bone which inevitably decreases strength and the ability to perform tasks of daily living such as gardening, carrying groceries and climbing stairs." Candow says. "Health costs associated with aging muscle and bone loss are in the billions of dollars."

Most of us get creatine from our diets and from what our bodies produce naturally. Athletes sometimes take creatine supplements to enhance their performance.

"Creatine basically increases the ability to exercise longer and at a higher intensity, leading to an increase in muscle mass and bone," Candow says.

His latest research, done in collaboration with Dr. Phil Chilibeck at the University of Saskatchewan, will look at people 50 and older who combine regular resistance training with creatine. This is the first international study to examine the impact of long-term creatine supplements on muscle and bone in older adults.

"The reason we chose age 50 is because that's when bone and muscles start to deteriorate significantly."

Each volunteer will participate in supervised resistance training – such exercises as leg presses, back extensions, and bicep curls – at the U of R or U of S three times a week, and take low-dose creatine supplements daily.

Their bone density and muscle mass will be checked with Dual Energy X-Ray Absorptiometry (DEXA) before, during and after the year. As participants will start at staggered intervals, the study will take two years to complete.

Saskatchewan has one of the highest proportions of older adults in the country. Fifteen per cent of the population is 50 years or older, three per cent higher than the national average. Our province also has one of the highest rates of osteoporosis in Canada.

Research Spotlight:
DARREN CANDOW,
SOCIO HEALTH
NEW INVESTIGATOR
AND EQUIPMENT
Dr. Darren Candow is studying whether creatine, a naturally occurring substance often used by athletes, can keep seniors strong when combined with weight training.

NEW INVESTIGATOR ESTABLISHMENT GRANTS

Asterisk (*) indicates accompanying Equipment Grant

***Veronica Campanucci,** Physiology, Medicine, U of S
Modulation of 5-HT3 receptors by oxidative stress: role in diabetic peripheral neuropathy

***Darren Candow,** Kinesiology and Health Studies, U of R
Potential of resistance exercise and creatine supplementation on aging musculoskeletal health

***Linda Chelico,** Microbiology and Immunology, Medicine, U of S
Biochemical basis of APOBEC3G-mediated deamination independent restriction of HIV-1

Lorraine Holtslander, Nursing, U of S
Finding balance: Developing a psychosocial intervention for older adults who are bereaved after caregiving for an advanced cancer patient

***Juan Ianowski,** Physiology, Medicine, U of S
Role of CFTR mediated airway submucosal gland secretion in the innate immune response to Pseudomonas aeruginosa

***Emily Jenkins,** Veterinary Microbiology, Veterinary Medicine, U of S
Diagnostic tools for understanding the ecology of hydatid disease in indigenous communities in north-central Saskatchewan

***Jennifer Jones,** Medicine, Medicine, U of S
Evaluation of drug exposure and infectious, malignant and health care utilization outcomes in patients with inflammatory bowel disease through the establishment of a Saskatchewan provincial [illegible]

Research Fellowships

This program offers a full-time training opportunity for high-quality candidates in health-related fields. Fellows are supervised by experienced, active researchers to further develop their research skills and equip themselves for a career in health research. The program offers a salary stipend of $45,000 per year for two years and a research allowance of $5,000 per year for up to two years. An additional Top-up Incentive Award of $5,000 per year for two years is available for qualified applicants.

FUNDING PROGRAMS

Using synchrotron light to improve cancer treatments

Anyone who has watched a loved one battle cancer or has gone through it themselves knows the misery that comes with chemotherapy.

The problem is chemotherapy drugs are toxic, attacking all cells, both good and bad. Ideally, healthy cells are able to resist the chemotherapy, while the cancer cells selectively die. But while healthy cells may survive, they don't survive unscathed. Hence the hair loss, nausea, fatigue, and susceptibility to infection.

Dr. Sean Dalrymple, a postdoctoral research fellow at the University of Saskatchewan, is using the Canadian Light Source synchrotron in an effort to potentially ease this suffering.

"If we are able to get this to work as we are hoping, the side effects of chemotherapy treatment could be far fewer," he explains. "Optimistically, we are trying to get to the point where patients may not even become sick at all."

Dalrymple works under the supervision of Dr. David Palmer, who leads the SHRF-funded Molecular Design Research Group based at the University of Saskatchewan. The group uses the advanced analytical tools of the Canadian Macromolecular Crystallography Facility (CMCF) at the synchrotron, the only such resource in Canada.

Dalrymple is using the synchrotron's ultra-bright X-rays to determine the shape and structure of GUS, an enzyme used in a new type of anti-cancer treatment known as Antibody-Directed Enzyme Prodrug Therapy (ADEPT).

One of the major problems with employing the human version of GUS in ADEPT is that it only retains about 10 per cent of its effectiveness at the pH levels that exist in the body. In contrast, GUS derived from *E. coli* bacteria performs significantly better.

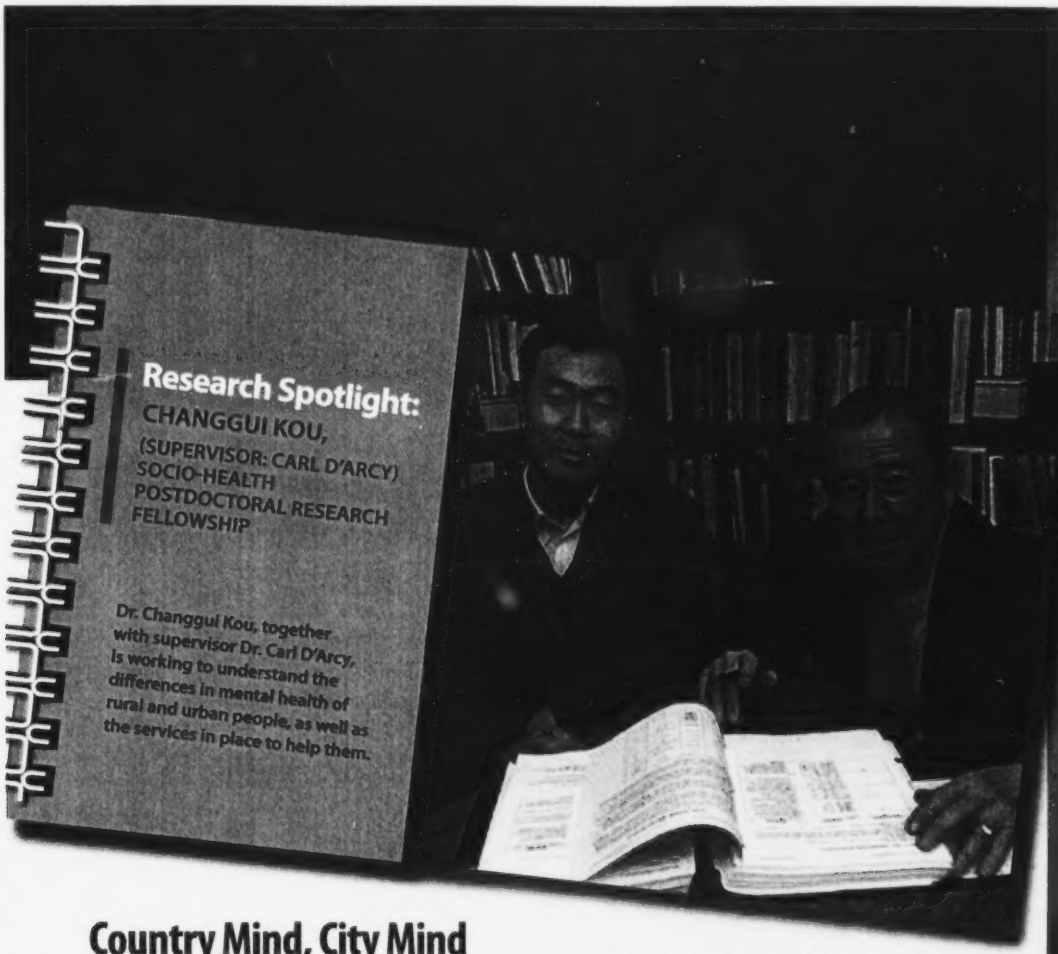
By comparing the two versions of GUS, Dalrymple hopes to understand their structural differences. This knowledge can then be used to redesign the administered human GUS for a new, improved version of ADEPT. This "optimized" version would be much more potent attacking only cancer cells while leaving the surrounding healthy cells alone.

This type of research could make a large difference in the lives of many, which is what drew Dalyrmple to the field of biochemistry from his initial field of inorganic chemistry.

"I wanted to conduct research that would impact people directly," he says. "That was the deciding factor in me switching my focus to health related research in biochemistry."

Research Spotlight:
SEAN DALRYMPLE
(SUPERVISOR-DAVID PALMER)
BIOMEDICAL
POSTDOCTORAL RESEARCH FELLOWSHIP

Dr. Sean Dalrymple is using ultra-bright synchrotron light to uncover differences in molecules that could lead to better cancer therapies with fewer side effects.



Research Spotlight:
CHANGGUI KOU,
(SUPERVISOR: CARL D'ARCY)
SOCIO-HEALTH POSTDOCTORAL RESEARCH FELLOWSHIP

Dr. Changgui Kou, together with supervisor Dr. Carl D'Arcy, is working to understand the differences in mental health of rural and urban people, as well as the services in place to help them.

Country Mind, City Mind

Is it better for your mental health to live in the city or in the country?

Dr. Changgui Kou, a postdoctoral research fellow at the University of Saskatchewan, hopes to find out.

While lifestyles of rural and urban Canadians differ greatly, there is currently little information on how the mental health of country folk compares to their city cousins.

Might the often solitary work of rural life and lack of educational opportunities increase mental health problems in rural or remote communities? On the other hand, could the small town's strong sense of community, personal relationships, and less time pressure promote better mental health? We just don't know.

"Rural and urban areas differ substantially in several ways, "Kou says. "We do not yet know that rural areas necessarily need more mental health services, but through this research we hope to gain an understanding of the use of mental health resources in rural areas."

Mental health can refer to a multitude of issues, including various manias and schizophrenia. However, Kou will focus on common mental disorders such as depression, anxiety, and substance abuse.

Kou is looking to Statistics Canada datasets to help understand what determines mental health status in both rural and urban Canada. This information will be accessed through the Saskatchewan Research Data Centre (SKY-RDC), which offers access to surveys and census data in a secure environment at the University of Saskatchewan. He will be the first to analyze the data in this way.

Kou works under the supervision of Dr. Carl D'Arcy, academic director of the SKY-RDC and director of applied research in the Department of Psychiatry at the U of S College of Medicine.

By tracking rural and urban trends from the last two decades to understand the rates of depression, Kou hopes to provide a comprehensive understanding of the mental health of rural Canadians by looking at mental disorders themselves, as well as the resulting disability, psychological distress and positive psychological well-being. He will also look at the need and use of mental health resources in rural areas, knowledge which will inform development of rural mental health policies.

Kou, who has come from China to complete his postdoctoral research, hopes the information gleaned from this study can be used as a basis for similar work back home. He also hopes that upon his return to China he can be involved in collaborative health research projects between our two countries.

POSTDOCTORAL RESEARCH FELLOWSHIPS

Kamakshi Balakrishnan,
Microbiology and Immunology, Medicine, U of S
(Supervisor: Wei Xiao and Yu Luo)

Structural basis of Rad51-mediated homologous recombination and recombination repair

Audesh Bhat,
Microbiology and Immunology, Medicine, U of S
(Supervisor: Wei Xiao)

Roles of a mutagenic polymerase in mitosis and genomic instability

Sean Dalrymple,
Biochemistry, Medicine, U of S
(Supervisor: Louis Delhaise (until Oct. 2009), then David Palmer)

Structure-function relationship in the Escherichia coli β-glucuronidase enzyme

Changgui Kou,
Psychiatry, Medicine, U of S
(Supervisor: Carl D'Arcy)

Rural-urban differences in mental health in Canada: Prevalence, determinants, unmet needs and regional variations

Binbing Ling,
Pharmacy and Nutrition, U of S
(Supervisor: Gordon Zello)

How does D-lactate cause neurological dysfunction in metabolic acidosis?

Paul Mellor,
Oncology, Medicine, U of S
(Supervisor: Deborah Anholt)

Role of [illegible] in [illegible]

Research Connections Grants

This program provides up to $10,000 per event in matching funds to support health research conferences, workshops, research days and similar events that are organized and held in Saskatchewan. It is intended to promote advancement and exchange of new health research knowledge, encourage linkages among multiple stakeholders, help address knowledge gaps in areas of particular importance to the province, and nurture the development of the next generation of health researchers.

FUNDING PROGRAMS

9th Annual Saskatchewan Cancer Research Day

In December 2009, the 9th annual Saskatchewan Cancer Research Day entitled *Cancer Research Connections for a Better Future*, once again provided a showcase to recognize and promote excellence in cancer research in the province. Led by University of Saskatchewan cancer researcher Dr. Anne Leis, the event has been a highlight of Health Research Week in the last few years, and has grown in attendance and scope.

Keynote speaker Mary McBride discussed childhood cancer in relation to survivorship, while highlighting her own research on preventing relapse and improving quality of life. McBride is senior epidemiologist in Cancer Control Research with the British Columbia Cancer Agency.

This open forum featured a graduate student research poster session as well as presentations covering a broad range of research from basic biochemistry to psychology and the latest clinical developments. In addition, the session called *Table talks: survivors and care partners' experiences and perspectives about research* generated a lot of excitement and valuable exchanges. In motion short breaks throughout the day reminded the participants to walk the talk.

Cancer Research Day was followed the next day by *Connecting the Breast Cancer Community*, which offered resources for people to improve their knowledge and understanding of the disease. The event also featured presentations and discussion, and provided contacts for various community resources and services for people living with the disease.

Research Spotlight:
RESEARCH CONNECTIONS:
OPEN DOORS/CLOSED RANKS: LOCATING MENTAL HEALTH AFTER THE ASYLUM
This two-day workshop drew participants and presenters from across Canada and internationally to discuss the history of mental health treatment and its impact on today's world.
Photo courtesy Michael Kesterton

Open Doors/Closed Ranks: Locating Mental Health after the Asylum

In August 2009, the *Open Doors project held Open Doors/Closed Ranks: Locating Mental Health after the Asylum*, a two-day workshop at the University of Saskatchewan. This SHRF-funded event provided a forum to explore themes surrounding mental health care in historical settings and their repercussions in the modern world.

Organized by medical historian Dr. Erika Dyck from the Department of History in the U of S College of Arts and Science and her colleagues, the workshop was aimed at mental health care educators and workers as well as social science and humanities scholars. It featured presentations of original research from British Columbia, Saskatchewan, Ontario, Nova Scotia, England, and the United States. Panel discussions provided a forum for discussion, and the second day featured a field trip to the Saskatchewan Hospital in North Battleford, one of the first psychiatric hospitals in Western Canada.

The Open Doors project, funded by CIHR, compares mental health experiences in urban Vancouver, rural and urban Saskatchewan, and small town Nova Scotia since the 1950s. This also includes experiences following the closure of long-stay mental hospitals in British Columbia, Saskatchewan, and Nova Scotia.

RESEARCH CONNECTIONS GRANTS

Allen Backman, School of Public Health, U of S
1st Annual School of Public Health Graduate Student Conference

Dongyan Blachford, Graduate Studies and Research, U of R
Creating community consciousness: Putting theory into practice. The 5th Annual University of Regina Graduate and Undergraduate Research Conference

Joanne Bracken, Alzheimer Society of Saskatchewan
Spotlight on research: Alzheimer's disease and related dementias

Darren Candow, Kinesiology and Health Studies, U of R
4th Annual Exercise Physiologists of Western Canada Annual Conference

Glenn Donnelly, Nursing, U of S
RN practice in Saskatchewan: A crucial conversation

Erika Dyck, History, Arts and Science, U of S
Open Doors/Closed Ranks: Locating Mental Health after the Asylum

Liz Harrison, Physical Therapy, Medicine, U of S
Putting the pieces together: The impact of interprofessional education and collaborative practice on health human resources

Anne Lebi, Community Health & Epidemiology, U of S
Saskatchewan Cancer Research Day 2009

Stacey Lovo Grona, Physical Therapy, Medicine, U of S
Research for the future: Moving physical therapy forward

Josh Marko, Saskatchewan Epidemiology Association
Disrupting the status quo: Intervention research in population health

Ian McPhadden, The Alliance Foundation
Alliance Biofuels and Biology and Business

Jennifer Poudrier, Sociology, U of S

Health Research Group Grants

These grants provide support for groups of talented researchers developing and carrying out plans for high-quality health research, knowledge translation, and capacity-building at a level of productivity that would not be possible from individual researchers working on their own. The program supports groups of researchers who comprise an appropriate range of talent, experience and perspectives for tackling complex health issues of importance to Saskatchewan. The program has three phases ranging from group development (Phase One) to substantial operating grants (Phase Three). The groups are a critical component of a vibrant health research enterprise in Saskatchewan, enhancing capacity to produce and share new knowledge that contributes to improved health and health-care.

The purpose of Phase One grants is to support the formation and early development of health research groups that have the potential to evolve into highly productive and sustainable research groups capable of moving to Phase Two and securing major competitive funding.

The purpose of Phase Two grants is to provide operating funding to support group members to collaboratively produce and share research knowledge that will strategically position them to compete for major funding at the national level. Successful Phase Two groups have demonstrated potential to evolve into highly productive and sustainable research groups.

The purpose of Phase Three grants is to provide major operational support to sustain productive groups of talented and experienced researchers doing high-quality health research in areas of importance to the province.

FUNDING PROGRAMS

Building bridges for healing

It happens to millions of people every year - an accident, major or minor, that crushes or severs nerves and causes loss of sensation or even movement in the affected limb. Since peripheral nerves have limited ability to heal themselves, the return of sensation and function is almost never complete.

Dr. Daniel Chen and the Tissue Engineering Research Group hope to change this with biomaterial "scaffolds" that help healing nerve cells find their way – essentially giving them a bridge to guide them across damaged sections.

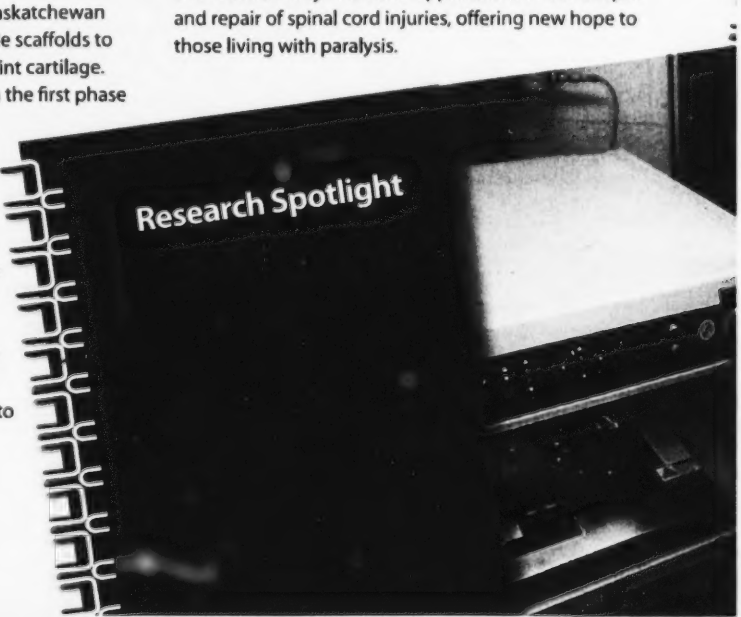
Chen and his team at the University of Saskatchewan are working to develop these implantable scaffolds to improve the repair of both nerves and joint cartilage. The team is building on research done in the first phase of the project, where they discovered that it was feasible to manipulate living cells using a bio-manufacturing system.

In phase two of the project, the team is working to manufacture scaffolds with living cells and growth factors built right in. The scaffolds will help new tissue regenerate while gradually degrading themselves and disappearing once their job is done. The team is working with culture dishes, and later animal models, to test how well the scaffolds work.

"Our goal is to develop living cell scaffolds for use in nerve and cartilage tissue engineering," Chen says. "If we achieve success in the animal models, we will be able to use these scaffolds for the repair of human nerves."

The team also hopes to develop a synchrotron-based medical imaging technique that could be used to monitor the success of scaffolds in promoting nerve and joint cartilage repair in humans.

The near-term goal is to help those living with peripheral nerve injuries and to help heal the cartilage damage associated with osteoarthritis. Over the longer term, knowledge and technologies generated through this research may find other applications in bone repair and repair of spinal cord injuries, offering new hope to those living with paralysis.



Troubled waters

For most Canadians, quenching thirst is as simple as turning the tap and filling a glass from the kitchen faucet.

We take it for granted and we shouldn't, according to Dr. Lalita Bharadwaj. For many of us, that kitchen faucet must be viewed with suspicion as a possible source of disease.

"The amount of people drinking untested water is a lot higher than people might realize," she explains. "Understanding the effects of this water on human health is critical."

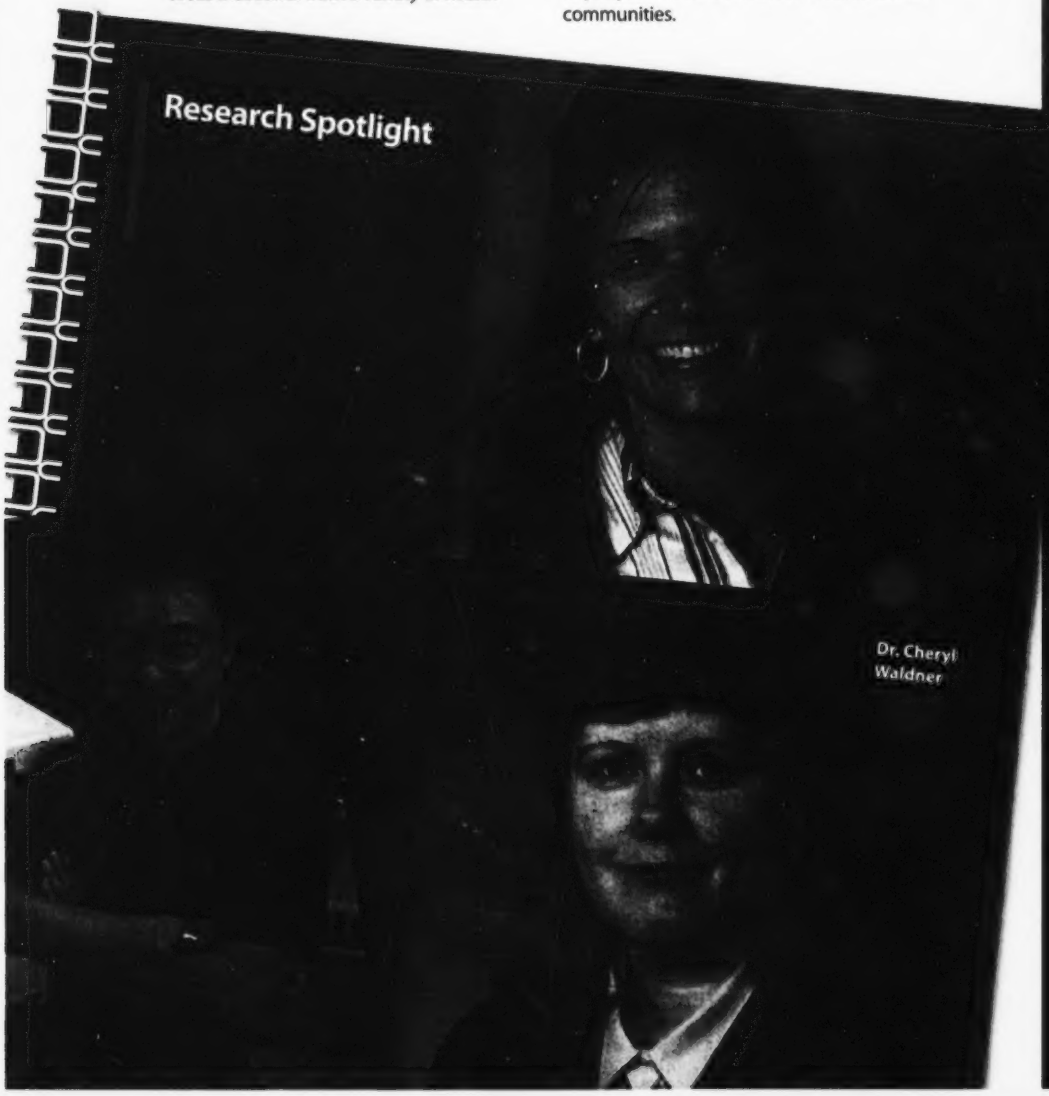
Bharadwaj, together with Dr. Cheryl Waldner, leads the Safe Water for Health Research Team (SWHRT) at the University of Saskatchewan. SWHRT is a diverse group, with expertise in microbiology, epidemiology, environmental toxicology, environmental assessment, resource management, water policy and governance.

Typically it is people living in marginalized communities such as those in rural and remote areas that suffer from a variety of health problems from drinking contaminated water. About 90 people die every year, right here in Canada, from waterborne illness.

Although there is clearly a link between water quality and health, there has been little research to examine the connection between the two. This makes it critically important to build capacity for research into water and health in rural and remote Saskatchewan.

The SWHRT team uses participatory research, which involves working with communities as partners in the research right from the beginning, for example by engaging community members in gathering information through interviews and focus groups. This approach aims to both foster more interest in the research and make sure it is relevant to community needs.

Ultimately, the team hopes to develop the critical knowledge necessary to inform evidence-based decisions about water policy to promote the health of all Saskatchewan people. The long-term goal is to help develop sustainable water management strategies that promote the health of people in rural and remote Saskatchewan communities.



The purpose of Partnership Programs is to collaborate with other funding agencies to support health research in Saskatchewan and increase national funds coming to Saskatchewan. Any grants funded through partnership programs must fit SHRF's mandate and objectives and must align with the goals of the provincial *Health Research Strategy*.

THIS SECTION:

- provides an overview of all partnership grants and awards awarded (see Table 2);
- summarizes partnership programs in which SHRF participated in this fiscal year; and
- lists recipients for each of the programs.

PARTNERSHIP pro

Table 2: Partnership Grants and Awards, 2009-10*

Partnership Program	Awarded			
	No.	Term (yrs)	SHRF $	Partner $
SK-CIHR Regional Partnership Program				
Operating Grants	7	2	$808,338	$808,338
New Investigator Salary Awards	1	5	$150,000	$150,000
Fellowships	3	1-2	$100,000	$100,000
Doctoral Awards	4	1-3	$121,000	$121,000
Saskatchewan Research Chair	1	5	$500,000	$500,000
Partnerships for Health System Improvement (with CIHR)	2	3	$198,083	$799,557
Total	**18**		**$1,877,421**	**$2,478,895**

* Awarded amounts are for the full term of the grant.

SASKATCHEWAN RESEARCH CHAIRS PROGRAM

The Saskatchewan Research Chairs Program is intended to attract, support and retain top-quality research leaders who are working in a provincial priority area and who contribute to capacity-building and knowledge sharing in those areas. The award provides $200,000 per year for up to five years, with up to $100,000 per year from SHRF and the remainder from partner agencies. Saskatchewan Research Chair awards are renewable once for 5 years subject to funding availability, and provide a contribution to the award holder's salary, funds to carry out research, and support for trainees working with the Chair holder.

Research Spotlight

Depression, pills, and Alzheimer's disease

Is our society's love affair with antidepressants setting us up for an epidemic of early-onset Alzheimer's disease?

"Depression doesn't necessarily cause more Alzheimer's disease, but what it does is it causes Alzheimer's disease to happen earlier," says Dr. Darrell Mousseau. "Depression is doing something to the brain that makes it much more vulnerable to developing Alzheimer's disease earlier on."

Mousseau, a professor in the U of S College of Medicine's Department of Psychiatry, together with his team, has found that an enzyme that plays an important role in depression can severely weaken brain cells and perhaps trigger the processes that lead to Alzheimer's disease. The team is also looking at the role of antidepressants in this process.

"We have to be careful about what kind of drugs we're putting into depressed patients because that could actually be creating Alzheimer's in some people," he says. "Instead of developing it when they're 70, maybe they'll develop it when they're 50 or 40."

Dr. Mousseau holds the Saskatchewan Research Chair in Alzheimer's Disease and Related Dementia. The chair is a partnership among SHRF, the Alzheimer Society of Saskatchewan, and the University of Saskatchewan. Each funding partner provides $100,000 per year for five years, while the U of S provides the necessary infrastructure and support. It is the first chair under SHRF's new Saskatchewan Research Chairs program.

Over the next five years of his Chair's term Mousseau and his team hope to come closer to discovering a way to provide earlier diagnostic measures and prevent Alzheimer's disease in a significant portion of the population.

As Canada's population ages, finding the cause of and cure for Alzheimer's disease is expected to become critically important. In its report *The Rising Tide*, the Alzheimer Society estimates that if nothing is done to stop or slow the disease, by the year 2038 one person will develop Alzheimer's disease or a related dementia every two minutes in Canada.

Partnerships for Health System Improvement Program

The Partnerships for Health System Improvement (PHSI) Program is a CIHR initiative run by the Institute for Health Services and Policy Research (IHSPR). It is designed to support teams of researchers and decision-makers interested in conducting applied health services research useful to health system managers and or policy makers over the next two-to-five years.

The Ministry of Advanced Education, Employment and Labour provides $150,000/yr to the Foundation from its Innovation and Science Fund to support teams doing research in Saskatchewan. The matching ratio for PHSI in Saskatchewan is 4:1, where CIHR provides the larger amount.

Teams apply to CIHR, which manages the peer review process. The Foundation's role is to encourage more applications in Saskatchewan, manage the provincial matching funds, and participate in the required relevance review. CIHR revised the program in 2008-09, based on consultations with researchers and funding partners, resulting in an increase in the amount of the grant and a streamlined application process. SHRF's agreement with CIHR to participate in PHSI is valid for competitions up to and including June 2010, at which time the agreement may be renewed.

Research Spotlight:

Sit down, relax, log on. Your therapist will see you now.

For those living in rural and remote communities, getting help for mental health problems such as depression, panic, or anxiety can be difficult or impossible. But what if the help we need could come right to our homes?

Dr. Heather Hadjistavropoulos and her team at the University of Regina are working to make this happen through Internet-Cognitive Behaviour Therapy (I-CBT). Using a computer, patients access a therapy website where they use materials such as text or video online. Regular email contact with a live therapist provides encouragement, guidance and direction.

"Offering therapist assisted online therapy is actually the first of its kind in Canada," Hadjistavropoulos says. "We'll be collaborating with groups in Sweden and Australia, both of whom have similar websites and are quite advanced in this area."

She explains that I-CBT has proven itself under research conditions, and is regarded as an evidenced based approach to therapy. The next step is to find out what it will take to have I-CBT offered more widely in Saskatchewan.

To this end, Hadjistavropoulos is working with health professionals from Saskatchewan Health, the University of Saskatchewan and five health regions, including Cypress, Five Hills, Regina Qu'Appelle, Sun Country, and Sunrise.

"Research so far shows people do want to use (I-CBT) and they can develop a relationship even over the Internet," Hadjistavropoulos says. "But this is in very controlled studies and specialized units. Will this hold true when you try to put this into broad use by many therapists?"

One of the unknowns is whether I-CBT will be effective with patients that have multiple or more complex mental health issues. Another challenge is to develop training for the therapists – a very diverse group that includes everyone from psychologists, social workers, and psychiatrists, to nurses. The research team is developing training sessions on I-CBT, followed by test cases to see how they do.

"These training sessions assume broad background knowledge and build on the skills therapists already have," Hadjistavropoulos says. "Will this be enough to assist therapists in competently using I-CBT?"

The promise of I-CBT is manifold. For people in rural and remote areas, it provides access to professional therapists anywhere in the province. It also provides a channel for training local therapists who are familiar with the culture and environment of their home communities.

Hadjistavropoulos and her team hopes their work with I-CBT will inform and enrich provincial policy on how mental health care is delivered in Saskatchewan, and serve as example for other health care providers across the country to emulate.

Regional Partnership Program

The Saskatchewan – Canadian Institutes of Health Research Regional Partnership Program (Sask-CIHR RPP) is intended to increase the level of nationally funded health research in Saskatchewan.

The Sask-CIHR RPP has a $2-million/year envelope, provided by CIHR and provincial funds. In Saskatchewan, funding consists of $700,000/year from SHRF, $250,000/year from the Ministry of Advanced Education, Employment and Labour (Innovation and Science Fund), and $50,000 for studentships from the Universities of Saskatchewan and Regina. SHRF manages these funds with its university and government partners through a provincial advisory committee.

Researchers apply directly to CIHR, which does the peer review and ranks the applications. Researchers with very good scores that are just below CIHR's high funding cut-offs are funded on 1:1 matching basis. SHRF's agreement with CIHR to participate in RPP has recently been renewed and extends to the spring 2012 competition.

Research Spotlight

REGIONAL PARTNERSHIP PROGRAM – DEBBIE KELLY

Dr. Debbie Kelly is working to understand whether the brain's two hemispheres need to work together to process information and remember as we age.

Bird brained: Using pigeons to understand aging brain hemispheres

"Where did I put my car keys?" Grandma asks.

"I don't know – where did you put them last?"

"Well if I knew that, I wouldn't be asking you, would I?"

Grandma's inability to remember where she put her keys (and let's be honest, Grandma's not the only one) can be cause for both amusement and consternation. But what's really going on?

According to Dr. Debbie Kelly, it may be that our aging brains simply need more resources to get the job done. Kelly's research at the University of Saskatchewan reveals that aging can affect how the two hemispheres of the brain complete specific tasks. Tasks that previously could be completed using primarily one hemisphere of the brain now require both. This means it may take longer for senior brains to complete specific mental tasks than when they were younger.

Using avian models – in this case, pigeons – Kelly is trying to understand how aging affects the brain. In the process, she hopes to better understand how aging affects our abilities to learn and remember.

"Pigeons actually have fewer connections between the two brain hemispheres compared to mammals," she explains. "Because of this, we are able to test each hemisphere simply by covering one eye at a time."

The work has implications far beyond finding our car keys. Aging has been found to affect how seniors encode featural and geometric cues. (Featural cues are colours and textures, whereas geometric cues refer to relations between objects such as the distance from an object to the individual.)

"For example, if an older adult sees a blue house in the distance, she may have trouble remembering that she must turn south before that house to get to the grocery store," Kelly says. "This leads to confusion and disorientation."

SASKATCHEWAN – CIHR REGIONAL PARTNERSHIP PROGRAM

Operating Grants

Oleg Dmitriev, Biochemistry, Medicine, U of S
Molecular mechanism of the human copper-transporting ATPases

Thomas Fisher, Physiology, Medicine, U of S
Structural and functional adaptation of supraoptic neurons to sustained hyperosmolality

Jim Xiang, Oncology, Medicine, U of S
A combined early and late HIV-1 protein-specific exosome-targeted T cell vaccine capable of counteracting immune suppressions and stimulating CD8+ CTL responses in absence of CD4+ T cells: A future therapeutic HIV – A vaccine

Sylvia van den Hurk, Vaccine and Infectious Disease Organization, U of S
Effects of hepatitis C virus on dendritic cells and implications for dendritic cell-based therapy

Greg Sawicki, Pharmacology, Medicine, U of S
Chemical Modifications of Myosin Light Chain 1 in Oxidative Stress and its Degradation by MMP-2

Terra Arnason, Medicine, Medicine, U of S
The role of ubiquitin in the molecular regulation of yeast AMP-activated protein kinase (AMPK), the SNF1 Kinase

Lingyun Wu, Pharmacology, Medicine, U of S
Mechanisms and intervention for methylglyoxal-induced glycation of AKT1

New Investigator Salary Awards

Debbie Kelly, Psychology, Arts and Science, U of S
Functional Lateralization of Spatial Cue Use: An Avian Model of Aging

Research Fellowship Awards

Susan Tupper, Community Health & Epidemiology, Medicine, U of S (Supervisors: Punam Pahwa, Alan Rosenberg)
Within-Day Patterns of Pain in Children with Juvenile Idiopathic Arthritis

Azharul Islam, Anatomy, Medicine, U of S (Supervisor: Troy Harkness)
Dynamic chromatin structure controls Anaphase Promoting Complex activity

Donna Lindsay, Anatomy and Cell Biology, Medicine, U of S (Supervisor: Troy Harkness)
The interplay of yeast kinase pathways with the Anaphase Promoting Complex in the genetics of cell longevity as a factor in aging

Doctoral Awards

Devon Andersen, Psychology, Arts & Science, U of S (Supervisors: Ulrich Teichert, Jaime Williams)
Cancer and Young Adults: Understanding Illness through Metaphors and Narratives

Levi Furber, Biochemistry, Medicine, U of S (Supervisor: Deborah Anderson)
Role of Ankyrin3, an ubiquitin adapter protein, in platelet-derived growth factor receptor degradation

Jesse McCrosky, Community Health & Epidemiology, Medicine, U of S (Supervisor: Punam Pahwa)
An Evaluation of the Effectiveness of Yoga Therapy for Chronic Digestive Disorders

Katherine McLeod, Kinesiology and Health Studies, U of R (Supervisor: Shanthi Johnson)
Osteoporosis Care Gap

PARTNERSHIPS FOR HEALTH SYSTEM IMPROVEMENT (CIHR)

Heather Hadjistavropoulos, Psychology, Faculty of Arts, U of R
Should Provincial and Regional Mental Health Authorities Invest in Internet Cognitive Behaviour Therapy for Common Mental Health Conditions? Criteria for Decision Making

Gary Teare, Health Quality Council, Community Health and Epidemiology, College of Medicine, U of S
Impact of Releasing Time to Care: Relationship of Outcomes and Context in a Nurse-led Health Care Improvement

SASKATCHEWAN RESEARCH CHAIRS

Darrell Mousseau, Psychiatry, Medicine, U of S
What is depression, as a risk factor, revealing about early events in Alzheimer Disease?

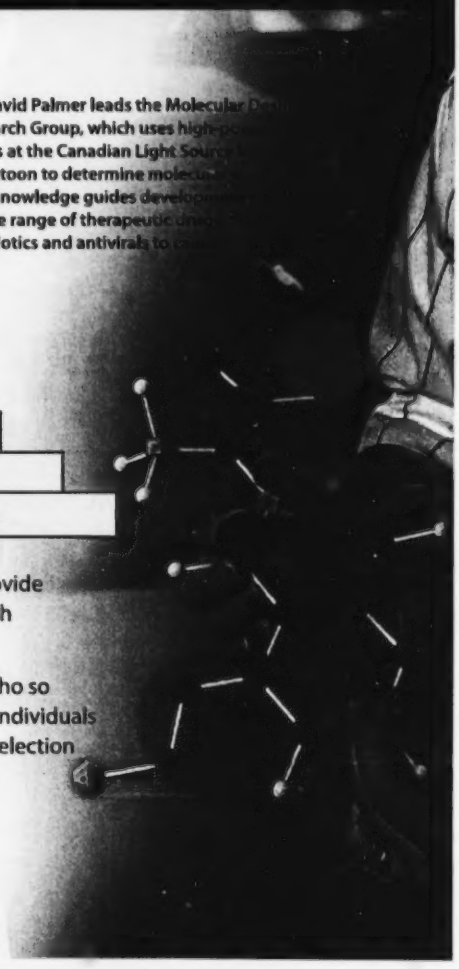
Note: Summaries of all Partnership Program grants are available online at www.shrf.ca.

Our selection processes are founded on peer review, where panels of active researchers assess proposals using excellence, relevance and feasibility as key deciding factors. Applications must also exemplify the stated objectives and priorities for the particular funding program as described in our *Awards Guide*. Our granting process has multiple steps that are listed below. Peer review for any programs where SHRF is matching or partnering with other funding agencies may be done by the other agency, so long as SHRF requirements are met.

PEER
re

SELECTION STEPS

- SHRF invites reviewers to serve on committees
- Applicants submit applications to SHRF
- SHRF staff screen applications for completeness and eligibility
- Review committee chair, with SHRF staff, assigns applications to reviewers
- Reviewers prepare in-depth assessments, based on program criteria and excellence
- Committee meets to discuss, rate and rank all applications
- Committee recommends meritorious applications for funding
- SHRF Board reviews and approves the committee's recommendations
- SHRF offers grants and awards to as many recommended applicants as resources permit
- SHRF staff ensure all conditions are met before authorizing payments to researchers' home institutions



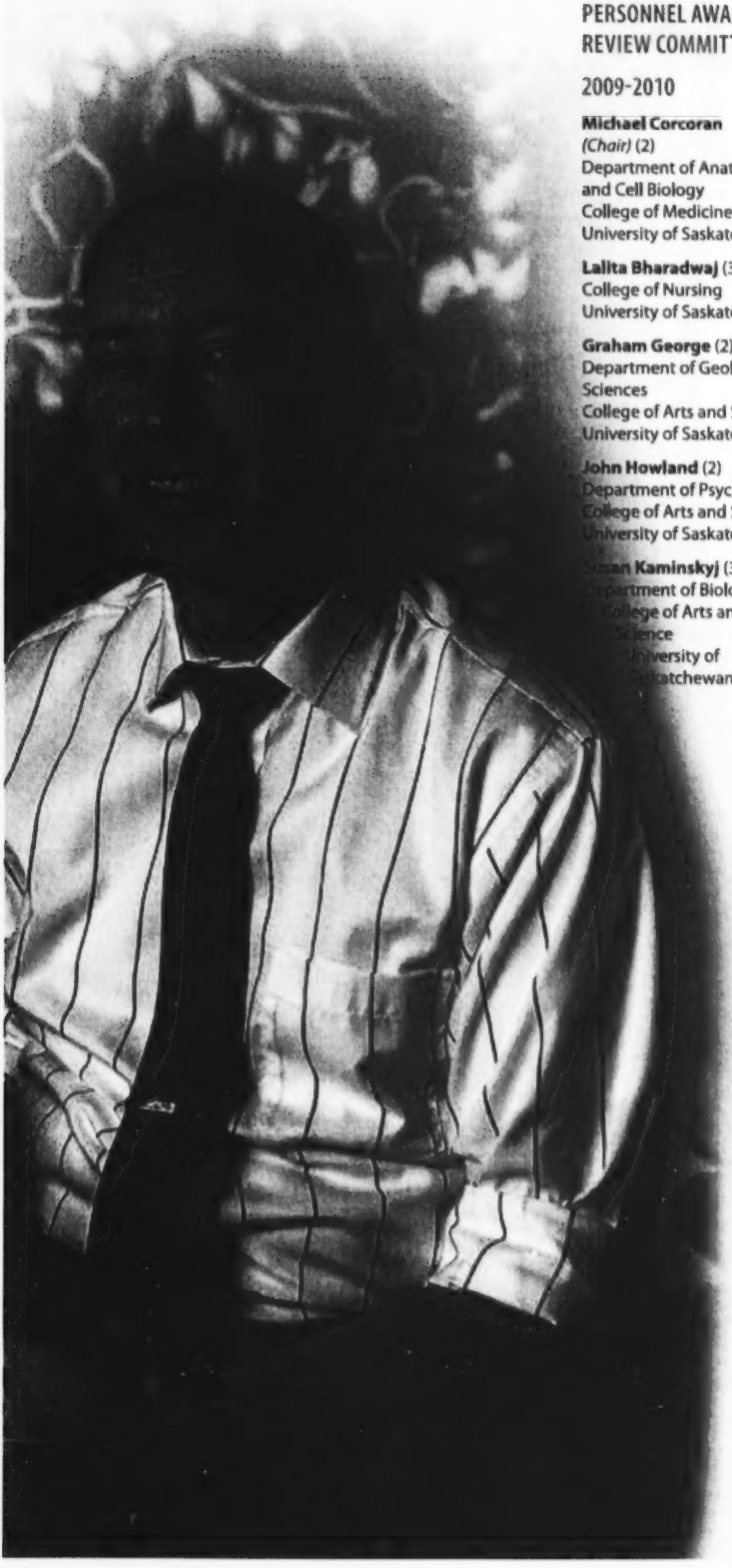
Dr. David Palmer leads the Molecular [illegible] Research Group, which uses high-[illegible] X-rays at the Canadian Light Source [illegible] Saskatoon to determine molecular [illegible] This knowledge guides development of a wide range of therapeutic drugs, including antibiotics and antivirals to [illegible]

Our peer reviewers are not only instrumental in evaluating applications, they also provide valuable feedback to us about procedures, programs and trends in the health research community. Peer review committee members for 2009-10 are listed in this section.

We are extremely grateful to our dedicated review committee chairs and members who so generously volunteer their time and expertise for three-year terms. These dedicated individuals contribute to the collective wisdom that is critical to the quality and integrity of our selection processes.

Committee Membership

Figures in parentheses indicate number of years served, including current year.



BIOMEDICAL PERSONNEL AWARDS REVIEW COMMITTEE

2009-2010

Michael Corcoran *(Chair)* (2)
Department of Anatomy and Cell Biology
College of Medicine
University of Saskatchewan

Lalita Bharadwaj (3)
College of Nursing
University of Saskatchewan

Graham George (2)
Department of Geological Sciences
College of Arts and Science
University of Saskatchewan

John Howland (2)
Department of Psychology
College of Arts and Science
University of Saskatchewan

Susan Kaminskyj (3)
Department of Biology
College of Arts and Science
University of Saskatchewan

Scott Murphy (2)
Department of Chemistry and Biochemistry, Faculty of Science
University of Regina

Adil Nazarali (2)
College of Pharmacy and Nutrition
University of Saskatchewan

Elemir Simko (2)
Department of Veterinary Pathology
Western College of Veterinary Medicine
University of Saskatchewan

BIOMEDICAL ESTABLISHMENT GRANT REVIEW COMMITTEE

Bill Roesler *(Chair)* (3)
Department of Biochemistry
College of Medicine
University of Saskatchewan

Jane Alcorn (2)
College of Pharmacy & Nutrition
University of Saskatchewan

Volker Gerdts (3)
Vaccine and Infectious Disease Organization
University of Saskatchewan

Lisa Kalynchuk (3)
Department of Psychology
College of Arts and Science
University of Saskatchewan

David Sanders (3)
Department of Chemistry
College of Arts and Science
University of Saskatchewan

David Schreyer (2)
Department of Anatomy and Cell Biology
College of Medicine
Saskatoon City Hospital

Emina Torlakovic (2)
Department of Pathology
College of Medicine
University of Saskatchewan

Christopher Yost (3)
Department of Biology
Faculty of Science
University of Regina

SOCIO-HEALTH, SYSTEMS, AND CLINICAL REVIEW COMMITTEE

Lesley Biggs *(Chair)* (3)
Department of Women's and Gender Studies
College of Arts and Science
University of Saskatchewan

Adam Baxter-Jones (3)
College of Kinesiology
University of Saskatchewan

Patty Beck (3)
Population Health Branch
Saskatchewan Ministry of Health

David Blackburn (2)
College of Pharmacy and Nutrition
University of Saskatchewan

Alexander Clark (1)
Faculty of Nursing
University of Alberta

Juliette Cooper (2)
School of Medical Rehabilitation
Faculty of Medicine
University of Manitoba

Donna Goodridge (1)
College of Nursing
University of Saskatchewan

Darlene Juschka (2)
Women's Studies Program
Faculty of Arts
University of Regina

COLLABORATIVE GRANTS AND AWARDS REVIEW COMMITTEE

Rod Kelln *(Chair)* (2)
Faculty of Graduate Studies and Research
University or Regina

Robert J. Hilsden (2)
Department of Medicine
Faculty of Community Health Sciences
University of Calgary

Leigh Murphy (1)
Department of Biochemistry and Medical Genetics
Manitoba Institute of Cell Biology

Colleen Norris (1)
Faculty of Nursing
University of Alberta

Tom Wishart (2)
Department of Psychology
College of Arts and Science
University of Saskatchewan

SUPPORTIVE

environment

Researcher Directory

The Saskatchewan Directory of Health Researchers is a rich resource for searching out research experts – whether you're a researcher interested in finding potential colleagues or you're a decision-maker looking for an expert on a certain topic. There are now more than 360 researchers in this fully searchable directory, which is available to the public online at www.shrf.ca.

Development of the directory began with SHRF joining the Canadian Common CV (curriculum vitae) initiative, known as the "CCV," in 2007-08. The CCV is an online repository where researchers enter and update information about their experience, publications and funding record and use it for submitting grant applications to many different agencies. It reduces data entry for researchers and produces a standard format for peer reviewers to assess applicants' track record and qualifications.

When Saskatchewan researchers complete their CCV, they are invited to add their information to the Saskatchewan Directory of Health Researchers, which SHRF developed in response to many calls for a health research inventory in the province. It was made possible because of our existing partnerships with other agencies in Canada that designed a directory structure that could be expanded across the country. Information from our Saskatchewan directory will also be included in Interprovincial Directory of Health Researchers in April 2010.

Research Data Centre

This was the third year of a partnership to create and support a Statistics Canada Research Data Centre (RDC) at the University of Saskatchewan – the Saskatchewan Research Data Centre (SKY-RDC). SHRF is pleased to be one of several partners in this important initiative. RDCs are considered essential infrastructure for social-science inquiry leading to better policy decisions through evidence-based information. They provide secure access to Statistics Canada data, operate according to Statistics Canada regulations, and are part of a nationwide RDC network. While the range of potential research is broad, about half the usage across Canada is health-related. The SKY-RDC is led by its academic director, Dr. Carl D'Arcy.

Since its opening in early 2008, the SKY-RDC has fostered many interesting studies and supported the training of individuals doing graduate and post-graduate studies. For example, studies have looked at physical activity in older adults, the use of vitamin and minerals supplements, and the role of nutrition in chronic disease prevention. For more on the SKY-RDC, research opportunities and projects generated, see http://library.usask.ca/sky-rdc/index.html.

Health Research Co-ordination

Since 2000, SHRF has supported special university-based positions focused on increasing health research activity and attracting more national health research funding to the province. Our health research co-ordination partnership with the University of Saskatchewan (U of S) concluded June 2009. Our agreement with the University of Regina (U of R) runs until December, 2010.

At the U of S, the partnership created and supported the University Co-ordinator of Health Research position held by Dr. Bruce Waygood from 2000 to 2007. After his retirement, the partnership expanded to include the Saskatoon Health Region. It supported a new shared position between the U of S (Associate Vice-President Research, Health) and the Saskatoon Health Region (Vice-President of Research and Innovation), which has been held by Dr. Beth Horsburgh since July 2007. With Dr. Waygood's leadership and mentoring, more researchers applied for national grants and achieved greater success rates. Dr. Horsburgh's leadership brings renewed emphasis on linkages between research and practice and on increasing clinical research capacity.

At the U of R, the partnership contributes to two positions for facilitating health research opportunities. One is a grants facilitator position and the other is a health research leader. The first person in the health leader role was Dr. David Gauthier, followed by Dr. Murray Knuttila, and most recently, Dr. Mary Hampton. The U of R has increased its health research capacity and activities in recent years and continues to see it as a strong growth area.

We appreciate working with our university partners in creating and supporting special positions for fostering research on important health issues and increasing the amount of funding flowing into Saskatchewan from national sources to support health research.

Given today's economic climate, increasing demands for public dollars, obligations for accountability and transparency, and the need to demonstrate the benefits of investments in health research, SHRF has strategically focused on evaluation and measuring impact.

MEASURING impact

In addition to the annual evaluation activities SHRF manages, two key initiatives have put the organization in a good position to respond to the demands of the time.

First, SHRF has worked with the National Alliance of Provincial Health Research Organizations (NAPHRO) and tri-council partners in implementing some of the recommendations in the Canadian Academy of Health Sciences (CAHS) assessment titled *Making an Impact: A Preferred Framework and Indicators to Measure Returns on Investment in Health Research*. This work includes defining and analyzing common economic indicators, advancing our understanding of bibliometric analysis, and exploring the measurement of capacity building, knowledge translation and health impacts.

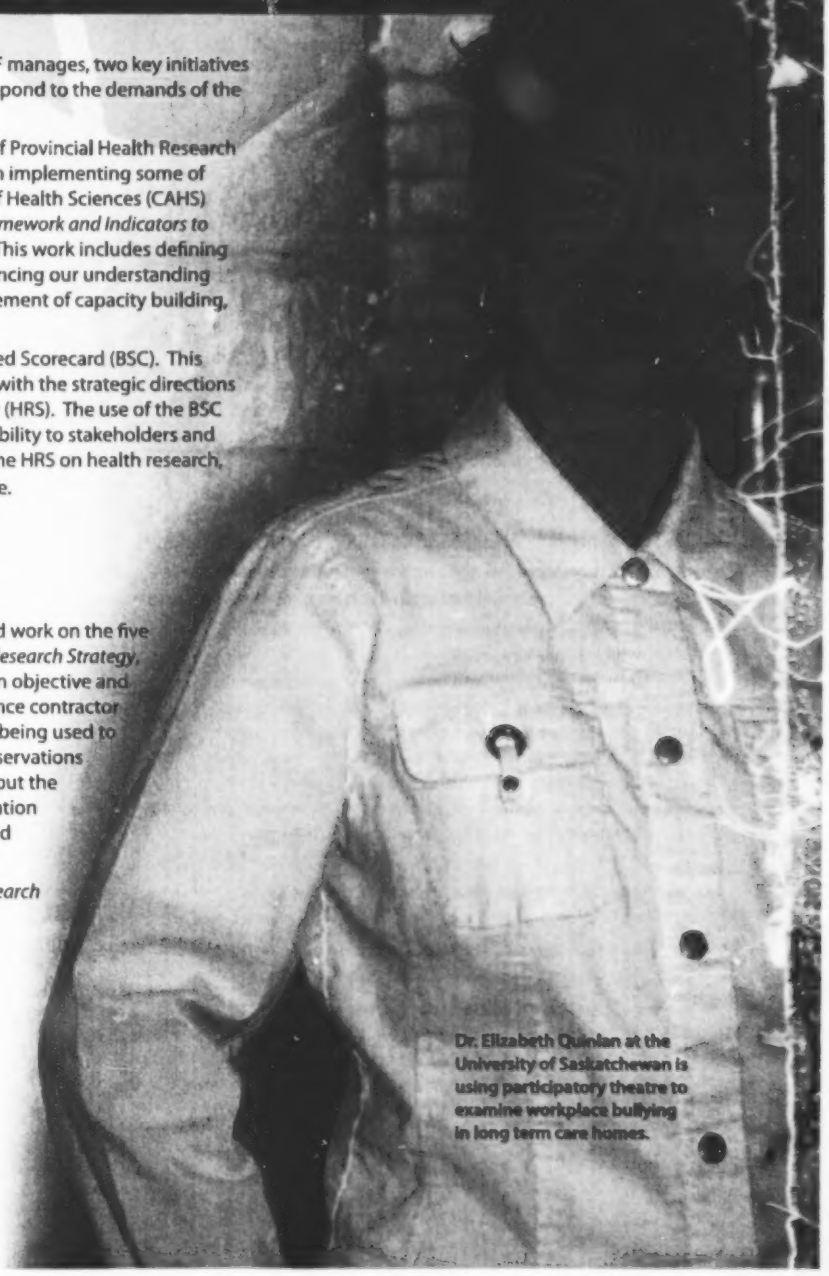
A second initiative at SHRF is the use of the Balanced Scorecard (BSC). This framework is being used to align SHRF operations with the strategic directions outlined in the provincial Health Research Strategy (HRS). The use of the BSC also enhances our ability to demonstrate accountability to stakeholders and show the impacts and contributions of SHRF and the HRS on health research, health care, and the health of Saskatchewan people.

Health Research Strategy

Five-year Mid-term Evaluation of the Provincial Health Research Strategy (HRS)

On behalf of the Ministry of Health, we have started work on the five year mid-term evaluation of the provincial *Health Research Strategy*, officially beginning in December 2009. To ensure an objective and transparent process, SHRF enlisted an out-of-province contractor to carry out the evaluation. An expert panel is also being used to provide advice on the evaluation project, make observations on the findings, and provide recommendations about the next five years of the Strategy. The following evaluation questions were identified for assessing progress and impact:

1. What progress has been made on the *Health Research Strategy's* short and mid-term action items?
2. What major activities and outputs were accomplished in:
   a. Advancing research in the priority areas?
   b. Building capacity to share and use health research?
   c. Strengthening overall health research capacity?



Dr. Elizabeth Quinlan at the University of Saskatchewan is using participatory theatre to examine workplace bullying in long term care homes.

d. Implementing and evaluating the Strategy?

3. What factors facilitated, or limited, implementation of the *Health Research Strategy* and in what ways?
4. How has the *Health Research Strategy* been integrated or adopted by other organizations?
5. Considering scope, content, and timelines, how does the Saskatchewan *Health Research Strategy* compare nationally and internationally?
6. What potential changes to the *Health Research Strategy* and/or its implementation may be necessary to ensure its success in the next five years and longer term?

The final report and panel recommendations will be presented to the SHRF Board in June 2010 and to the Minister by September 2010. SHRF will also share these results with the research community and other stakeholders thereafter.

Health Research Capacity

Late in the year SHRF produced a report describing who Saskatchewan health researchers are and what types of health research are being done in the province. This information, drawn from the Saskatchewan Directory of Health Researchers, gives us a general understanding of health research capacity in the province of Saskatchewan (see p. 22 for details).

SHRF obtained the directory data in June 2009 from eVision inc., the software developers and hosts of the data. After data cleaning, there were 360 valid researcher entries in the Directory. SHRF plans to share this report with the research community in the coming months.

Program Impact

5-Year Follow-up Survey

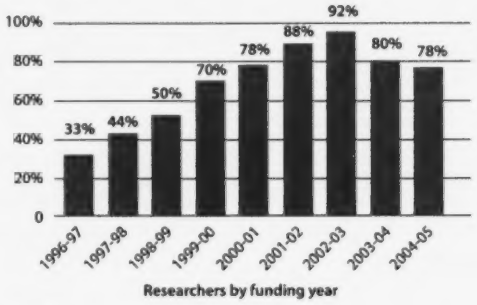
This year's five-year follow-up study focused on the 2004-05 New Investigator Establishment Grant holders and was completed over the summer of 2009. The purpose of this study is to assess the impact of the program on researchers' ability to attain national funding, research productivity, and potential benefits to the economy, society and the health of Saskatchewan people. Key highlights of this study include:

- All nine grant recipients responded to the online survey
- Seven of nine remained in the province to conduct research over the last five years
- Eight of nine respondents had a primary author publication
- Eight of nine respondents had received another major grant (over $25, 000/yr)
- Eight of nine respondents indicated the SHRF grant had a moderate to high impact on their subsequent research
- Eight of nine respondents indicated that the SHRF New Investigator Establishment Grant was very important in establishing their research program
- For every $1 of SHRF funding, researchers attained $24 as either a Principal or Co-Investigator in National funding

FIVE-YEAR FOLLOW-UP:

Percentage of New Investigator Establishment Grantees in Saskatchewan

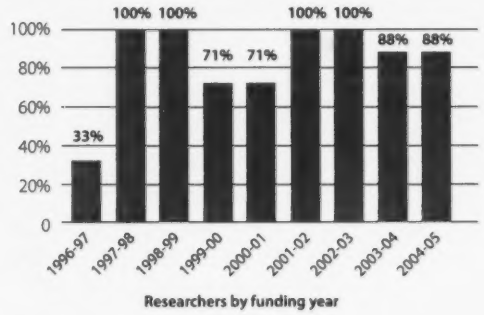
(1996-97 to 2004-05 Competitions)



FIVE-YEAR FOLLOW-UP:

Percentage of Establishment Grantees with Another Major Grant

(1996-97 to 2004-05 Competitions)



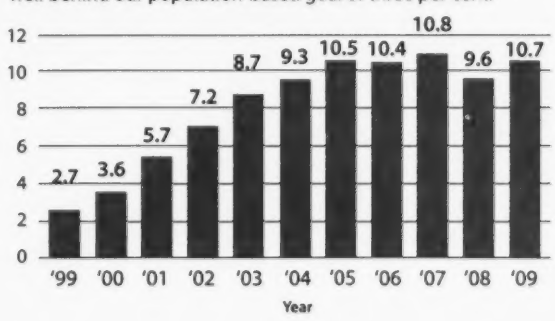
National Comparisons

Canadian Institutes of Health Research (CIHR) Funding

Annually, SHRF calculates the share of national funding attained by provincial health researchers. This is a commonly used indicator of research performance and capacity. Saskatchewan researchers were successful 154 times and attained more than $10.7 million dollars in CIHR competitive funding for the 2009/2010 fiscal year. Although Saskatchewan increased its share of the CIHR budget over the last year (from 1.06 per cent to 1.2 per cent), we are still well behind our population-based goal of three per cent.

CIHR funding to Saskatchewan

Dollars in Millions



The Pain in our Heads

"This is going to hurt."

Did you just wince? If you did, you've just demonstrated the power of our thoughts to affect our bodies.

This mind-pain link is the province of Dr. Gordon Asmundson at the University of Regina.

"What we've found is that fear itself serves as a mechanism to maintain chronic pain," he says. "For example, even after an injury has healed, the fear of pain will often keep a person from exercising or doing other activities associated with pain, leading to physical deconditioning, which leads in turn to more pain."

Asmundson's research has determined that fear and anxiety disorders can worsen chronic pain. This is perhaps most marked in cases of post traumatic stress disorder (PTSD). Popular perception of PTSD has it as a "battlefield disease" (think "shell shock"), but it can arise from numerous causes. These include violent physical attack by another person or by a natural disaster. But it also can include observing violence, such as witnessing a car crash, or even being told about such events by another person.

Through his research, Asmundson has become an international authority in the fields of chronic pain and anxiety disorders, including PTSD. He has written more than 240 journal articles and book chapters on these subjects and is author and co-author of several books, including *"It's Not All in Your Head: How worrying about your health could be making you sick and what you can do about it;" "Understanding and Treating Fear of Pain;" and "Health Anxiety Disorders: A Clinical Guide to Assessment and Treatment."* An active clinical researcher and mentor, his graduate students are also regular recipients of prestigious awards and five have received the Brain Star Award from the Canadian Institutes of Health Research (CIHR) in the past several years.

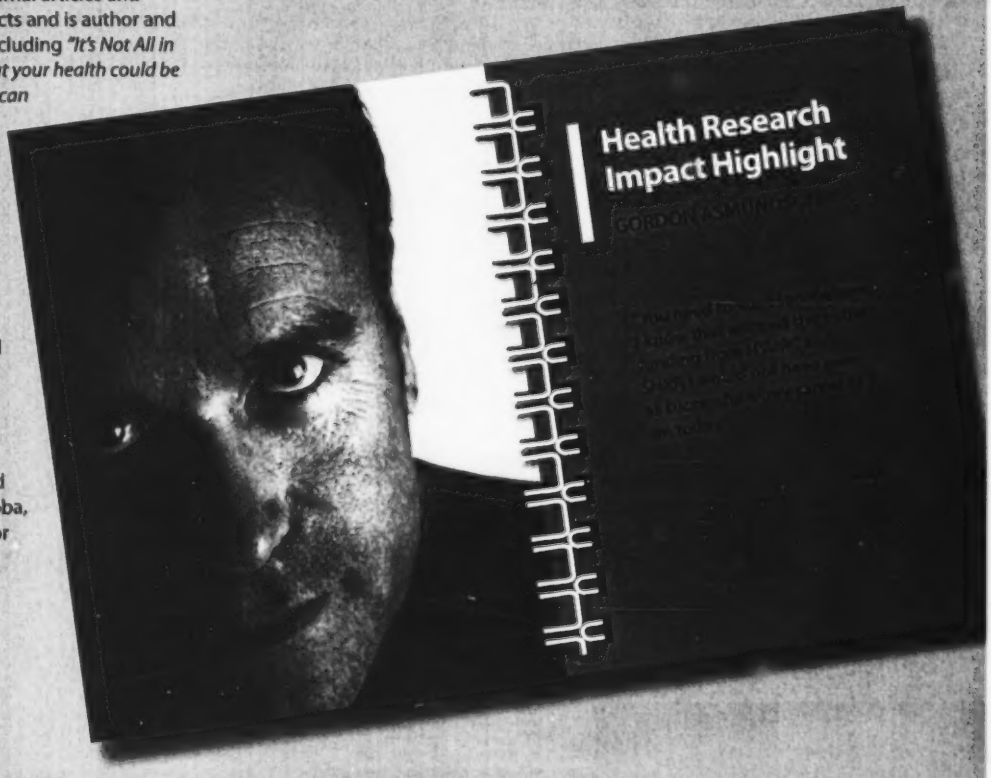
When Asmundson first moved to Saskatchewan from Manitoba, he received a New Investigator Award through HSURC (an ancestor to SHRF), which helped to set the stage for future success. His first study resulted in a large number of published papers, which helped him secure further grants through HSURC, and later, a regional partnership program (RPP) grant funded by the province and CIHR.

These initial successes bolstered his confidence to go after further national funding, and his career snowballed from there.

"I needed that initial funding to really get me going," he says. "I think of my early research as a small snowball at the top of a hill. That first bit of funding was the push that got the ball rolling. It picked up size and speed thereafter."

Today, Asmundson continues his work on PTSD and its links with chronic pain. He and his team have found that PTSD and chronic pain tend to result from similar experiences, but the pain is often medically unexplained. He hopes to discover if traumatic experiences alter the way that people perceive and process pain, which may help explain why these conditions tend to co-occur. This knowledge could lead to improved treatments that deal with both conditions.

Asmundson's efforts have not gone unnoticed. In 2008, he received SHRF's Achievement Award and in 2009 he was inducted as a Fellow of the Royal Society of Canada, the highest academic accolade for a scientist or scholar in this country.



Smart Cities, Healthy Kids

For the first time in modern history, the life expectancy of children may well drop lower than that of their parents. The reason: lifestyles that discourage physical activity and foster obesity.

"To a large extent, the way we behave is shaped by our environment," says Dr. Nazeem Muhajarine. "We tend to develop sedentary lifestyles if we don't have a lot of opportunities for physical activity, or have competing activities that discourage us from being active."

Muhajarine leads the Healthy Children research program within the Saskatchewan Population Health and Evaluation Research Unit (SPHERU), which includes researchers from the University of Saskatchewan and University of Regina. Their "Smart Cities, Healthy Kids" project is looking at the design of urban neighbourhoods in Saskatoon to identify the elements that encourage children to get up and go.

These elements include things such as buildings, roadways, sidewalks, parks, and green spaces, and how they contribute to increasing children's physical activity. By learning what is and isn't working in Saskatoon, the team hopes to inform the design of future neighbourhoods throughout Saskatchewan and across Canada.

Through their research, Muhajarine and his team also seeks to shed light on how the social contexts in which children live — their families and their neighbourhood — help or hinder them in their early years. This is the type of research that he thrives on.

"We have done studies looking at various factors—from family, neighbourhoods, schools, and larger society—that impact children, beginning with even before they are born to when they begin school," Muhajarine says. "What do we see in a community that is essential to nurturing healthy children that grow up to be well-adjusted, productive citizens? How can we provide these essentials?"

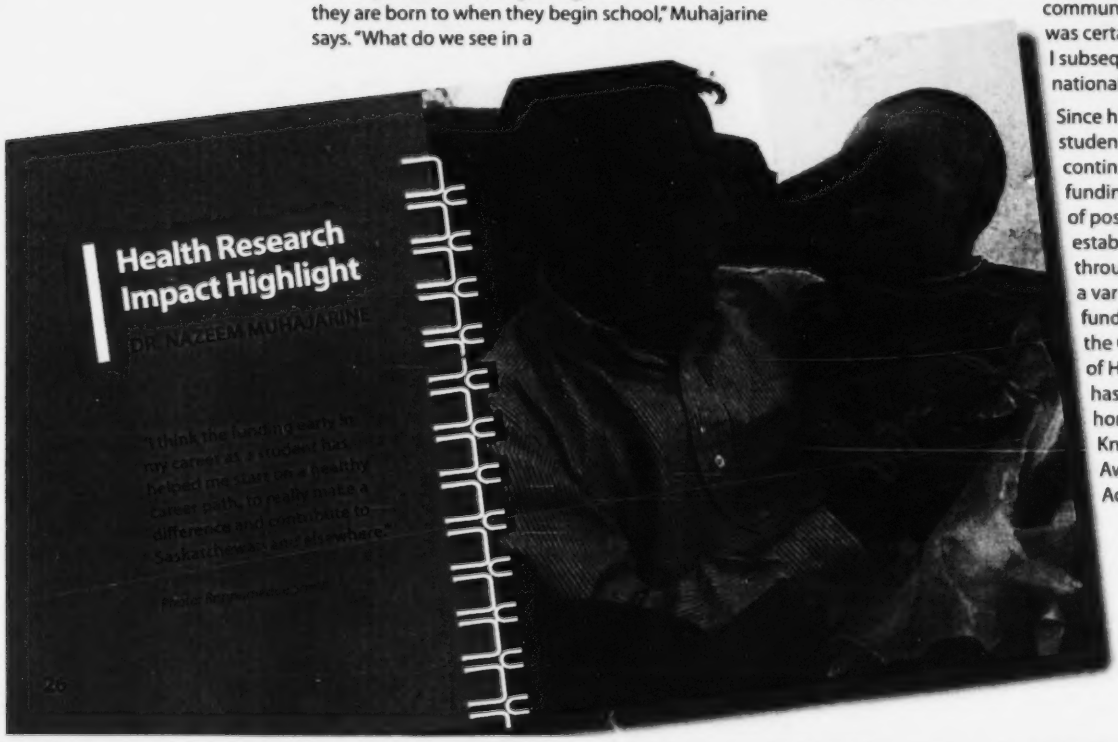
In addition to the "Smart Cities, Healthy Kids" project, Muhajarine and his research team are also working on many other research and knowledge transfer projects in early childhood development. They are just about to wrap up a three-year evaluation of the effectiveness of KidsFirst, the provincial government's early childhood development program for vulnerable families with young children delivered locally at nine sites in the province. KidsFirst uses home visiting to mentor parents and connect them to needed supports so they can be the best parents they can be, and have the healthiest children possible. Muhajarine is looking at the impact KidsFirst has made on children and their parents' lives in the first few years of the program.

Findings from previous research projects have contributed to improved programs and services for children in several ways. Saskatoon's school boards have initiated major literacy programs and have introduced and expanded a full-time kindergarten option, while the city's public library has improved access to services in underprivileged areas. Last year, he received CIHR funding to launch kidSKAN, the Saskatchewan Knowledge to Action Network for early childhood development (www.kidskan.ca), a provincial community of practice to connect researchers with practitioners and policymakers across the province.

Muhajarine was awarded his first research grant while he was a doctoral student, from the Saskatchewan Health Research Board (a precursor to SHRF).

"I believe the early funding really contributed to my development as a researcher," Muhajarine says. "Being funded when I was fairly new to the research community as a PhD student was certainly beneficial when I subsequently applied for national grants."

Since his early days as a student, Muhajarine has continued his success in funding through a variety of post-doctoral and establishment grants through HSURC and a variety of national funding sources such as the Canadian Institutes of Health Research. He has won prestigious honours such as CIHR's Knowledge Translation Award and SHRF's Achievement Award.

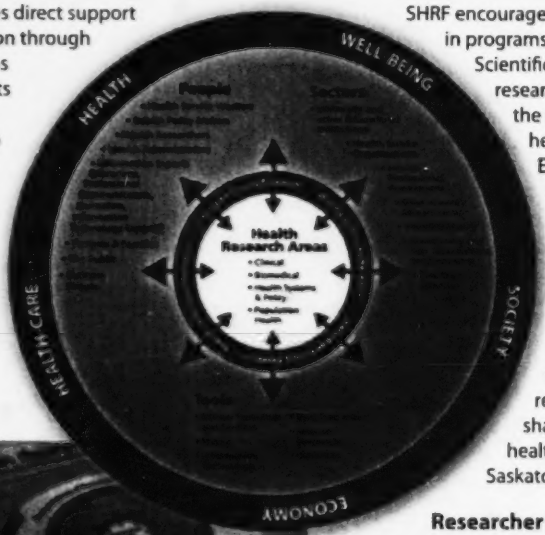


Knowledge translation – sharing and using health research – is a major theme in the provincial *Health Research Strategy*. It is reflected in the Foundation's legislated mandate to disseminate information about the research we fund and its results.

KNOWLEDGE translation

Health research is a search for answers, but these answers can only have impact if they are shared with the people who can use the knowledge. For this reason, SHRF emphasizes and encourages knowledge translation at all stages of research, from grant application and peer review, to regular reports during the work itself and follow-up surveys at the five-year mark.

The Foundation provides direct support for knowledge translation through its Research Connections program, which supports a wide array of events, from local workshops to conferences drawing international calibre experts. SHRF leads Health Research Week every year, which brings research knowledge to the public via the media. A central event is the Santé! Awards Dinner which features a research poster session and networking opportunities for the research community. The evening also provides a chance to celebrate health research achievements.



SHRF encourages participation in programs such as CIHR's Café Scientifique, which brings together researchers with members of the public to discuss pressing health issues of the day. Events like these connect researchers with the community, helping to ensure the questions we explore are those most relevant to our shared goal of improving people's health.

The *Health Research in Action* framework offers ideas and guidelines on how to share and use health research. For more information and copies of the Framework, visit www.shrf.ca.

In the coming year, the Foundation will continue to encourage and support researchers' efforts and explore new ways to share knowledge among the health research and health care communities, as well as the people of Saskatchewan.

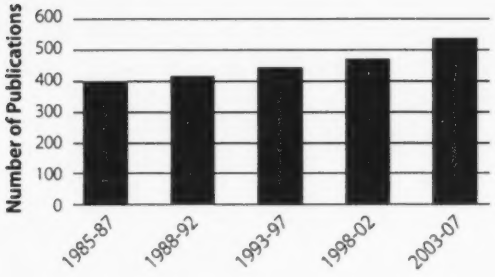
Researcher Publications

SHRF continues to work with our National Alliance of Provincial Health Research Organizations (NAPHRO) partners on the analysis and interpretation of trends in scientific publications (bibliometric data). Through this partnership we will acquire updated data from Science Metrix for two more years. For SHRF purposes, these data are primarily examined in the medical sciences field, which includes biomedical, clinical medicine, psychology, and health social science research domains.

Although scientific publications are just one form of knowledge translation in which our researchers participate, bibliometric data

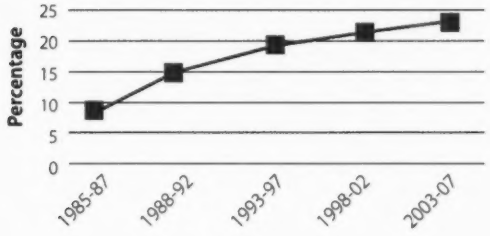
are used to benchmark and compare the quantity and quality of Saskatchewan health research. As displayed in the graph below, according to calculated five year averages, Saskatchewan researchers have shown a steady increase in the number of publications obtained in the medical sciences between 1985 and 2007.

Number of Publications in Saskatchewan in the Medical Sciences, 1985-2007
(Five-Year Average)



Bibliometric data also show us that the percentage of publications in Saskatchewan where academic sectors collaborate with non-academic sectors has increased steadily from 1985 to 2007, looking at the five year averages.

Percentage of Medical Science Publications in Saskatchewan with Collaboration between Academic and Non-Academic Sectors, 1985-2007
(Five-Year Average)



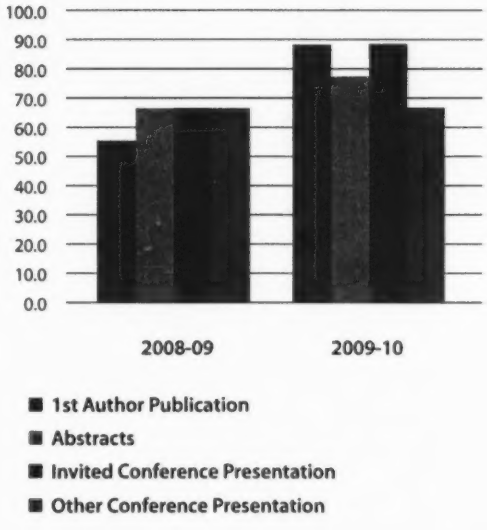
Other Knowledge Translation Activity by Researchers

SHRF follows up with New Investigator Establishment Grant recipients five years after receiving their award. An important part of this follow up report is the researcher's knowledge translation (KT) activities accomplished since receiving their SHRF grant. KT activities reported on include primary and collaborating author on peer reviewed publications, non-peer reviewed publications, book chapters, abstracts, technical reports, conference presentations, and patents.

The graph below shows results from the 2008-09 and 2009-10 surveys, meaning the respondents are from the 2003-04 and 2004-05 competitions, respectively. In 2008-09, nine out of 10 grantees responded to the survey and in 2009-10, all nine grantees responded. Shown is the percentage of establishment grantees who accomplished the selected KT activities: first author publication, abstract, invited presentation, and other conference presentations.

Although there are currently only two years of follow up data since SHRF was founded in 2003, there is a promising increase in the percentage of establishment grantees accomplishing knowledge translation activities. In subsequent follow-up studies, the list of KT activities being tracked by SHRF has grown to include media stories in web, print, or television, and presentations of results to community or industry partners.

Five-Year Follow up: Per cent of Establishment Grantees Reporting Knowledge Translation Activities



SHRF works to spread the news about and promote health research excellence in this province. Through these activities, SHRF is being accountable to the people of Saskatchewan by sharing information about the innovative and exciting research being funded by public money. These efforts also foster connections between researchers and stakeholders, links that help them to share and use health research knowledge for the benefit of the people of our province.

DISSEMINATION AND promotion

The most prominent effort this year was a series of radio ads running in Saskatoon and Regina, highlighting Saskatchewan researchers and their work, and encouraging listeners to visit the Foundation website at **www.shrf.ca** for more health research stories.

The website continues to be a core communications channel, with news and information on funding programs and partnerships, as well as brief summaries on all SHRF-funded researchers across Saskatchewan. The website is also the entry point for the Saskatchewan Directory of Health Researchers, a networking and information tool that now contains more than 360 names. *SHRF Notes*, our quarterly electronic newsletter, continued as a conduit of information to about 1,000 subscribers in the health research community.

SHRF once again honoured our new researchers with the **Top Researcher Awards**, given to those individuals who ranked highest in the New Investigator Establishment Grant and Postdoctoral Research Fellowship competitions. The winners in the New Investigator Establishment category were **Dr. Linda Chelico** (Biomedical) and **Dr. Lisa Lix** (Socio-Health). Top honours in the Postdoctoral Research Fellowship category went to **Changgui Kou** (Socio-Health) and **Dr. Erica (Binbing) Ling** (Biomedical).

Several excellent candidates were put forward by their colleagues for consideration for this year's Achievement Award. Dr. Nazeem Muhajarine (see also p. 26), from the University of Saskatchewan was selected by an independent panel to receive the honour this year. Dr. Muhajarine's work centres on the factors that create communities that foster healthy children.

All award winners were recognized along with their fellow SHRF grant recipients for the year at SHRF's annual Santé! Awards Dinner. About 160 researchers and members of Saskatchewan's health research community attended the December 3rd event at Saskatoon's Delta Bessborough Hotel. The evening included a poster session for researchers that allowed them to discuss their projects with colleagues and VIPs, followed by a gala dinner. Special guests included the Honourable Don McMorris, Saskatchewan Minister of Health, who was on hand to present the awards and congratulate the winners.

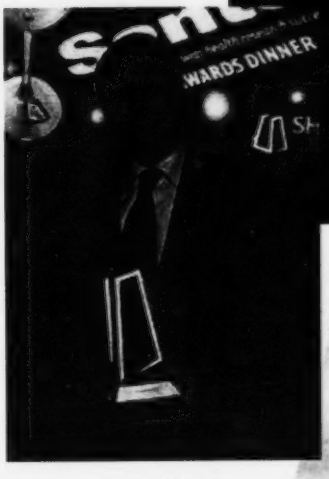
"A vibrant research sector is essential to providing patients with high quality, effective health care," Minister McMorris said. "The knowledge gained from this outstanding research will support innovative health solutions that serve patients in the best way possible."

Minister McMorris was joined in congratulating the winners by the Honourable Rob Norris, Saskatchewan Minister of Advanced Education, Employment and Labour.

Dr. Lisa Lix from the University of Saskatchewan accepts congratulations for her SHRF Top Researcher Award (Socio Health) from the Honourable Don McMorris, Saskatchewan Minister of Health (left) and the Honourable Rob Norris, Saskatchewan Minister of Advanced Education, Employment and Labour at the Santé! Awards Dinner during Health Research Week 2009.

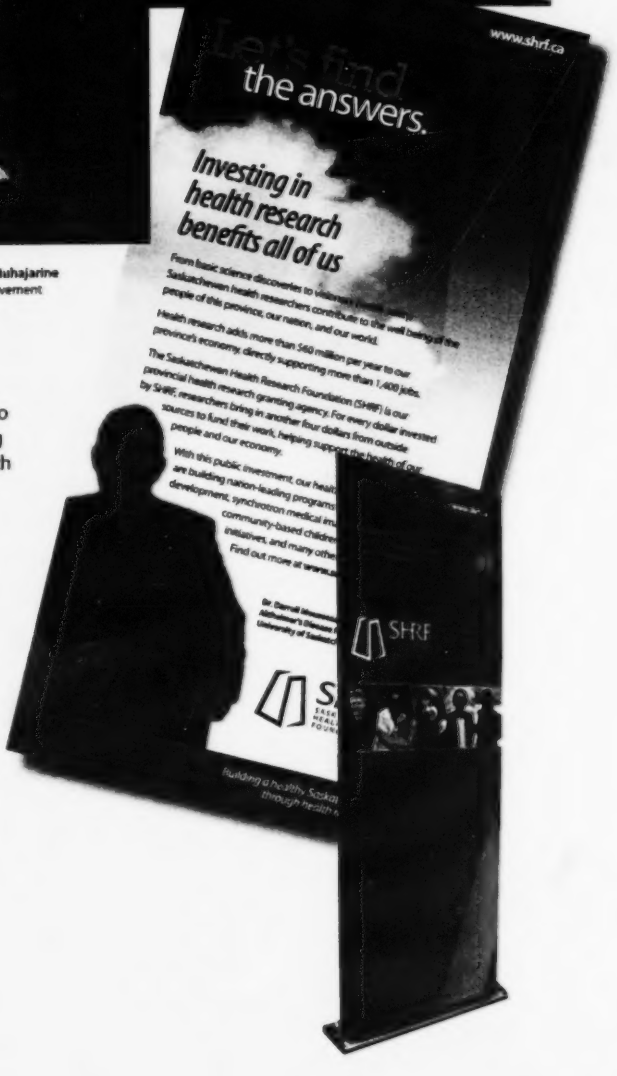
The Santé! Awards Dinner was the highlight of Health Research Week from November 29 to December 5, 2009. Some of the week's other activities included two Café Scientifique public events, *"Why Should I Take My Doctor's Advice?"* in Saskatoon organized by the University of Saskatchewan Research Communications Office, and *"Eating Our Hearts Out: Poor Health Amidst Plenty,"* in Regina organized with University of Regina Research Services.

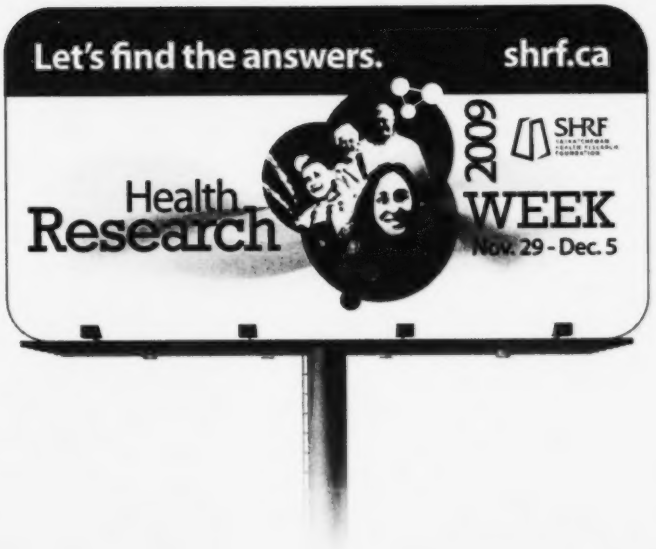
Outdoor billboards proclaiming Health Research Week were on display in Regina and Saskatoon, and a special supplement was produced once again in the Saskatoon *StarPhoenix* and Regina *Leader-Post*. This supplement featured stories on the latest work by researchers from the University of Regina and University of Saskatchewan. A supporting ad was also produced and ran on Global Television in Regina and Saskatoon.



Dr. Nazeem Muhajarine
Winner, Achievement Award, 2009

In March 2010, the provincial government's allocation to the Foundation was reduced, affecting many aspects of the organization. In light of this reduction, various operational activities including communications are being evaluated and adjusted for the coming year. To get us started, we are undertaking a strategic consultation process to guide us in 2010-11. We remain committed to sharing news about the excellent work of our province's health researchers.





FINANCIAL OVERVIEW

Report of Management

Management is responsible for the integrity of the financial information reported by the Saskatchewan Health Research Foundation.

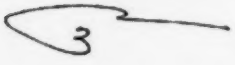
Fulfilling this responsibility requires the preparation and presentation of financial statements and other financial information in accordance with Canadian generally accepted accounting principles that are consistently applied, with any exceptions specifically described in the financial statements.

The accounting system used by the Foundation includes an appropriate system of internal controls to provide reasonable assurance that:

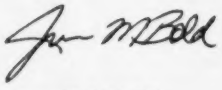
- transactions are authorized;
- the assets of the Foundation are protected from loss and unauthorized use; and
- the accounts are properly kept and financial reports are properly monitored to ensure reliable information is provided for preparation of financial statements and other financial information.

To ensure management meets its responsibilities for financial reporting and internal control, board members of the Foundation discuss audit and financial reporting matters with representatives of management at regular meetings. Foundation board members have also reviewed and approved the financial statements with representatives of management.

The Provincial Auditor of Saskatchewan has audited the Foundation's statement of financial position and statements of operations, change in net financial assets and cash flows. His responsibility is to express an opinion on the fairness of management's financial statements. The Auditor's report outlines the scope of his audit and his opinion.



Terry Baker
Board Chair



June M. Bold, MSc
Chief Executive Officer

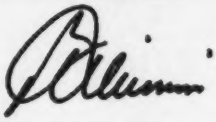
Auditor's Report

To the Members of the Legislative Assembly of Saskatchewan

I have audited the statement of financial position of the Saskatchewan Health Research Foundation as at March 31, 2010 and the statements of operations, change in net financial assets, and cash flows for the year then ended. The Foundation's management is responsible for preparing these financial statements for Treasury Board's approval. My responsibility is to express an opinion on these financial statements based on my audit.

I conducted my audit in accordance with Canadian generally accepted auditing standards. Those standards require that I plan and perform an audit to obtain reasonable assurance whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation.

In my opinion, these financial statements present fairly, in all material respects, the financial position of the Saskatchewan Health Research Foundation as at March 31, 2010 and the results of its operations and its cash flows for the year then ended in accordance with Canadian generally accepted accounting principles.



Regina, Saskatchewan
May 6, 2010

Brian Atkinson, FCA
Acting Provincial Auditor

Statement 1

SASKATCHEWAN HEALTH RESEARCH FOUNDATION
STATEMENT OF FINANCIAL POSITION
As at March 31

	2010	2009
Financial assets		
Cash and cash equivalents (Schedule 2)	$ 1,202,219	$ 672,390
Accrued interest receivable	44,793	39,248
Accounts receivable	14,845	40,661
Short-term investments (Schedule 2)	1,616,104	2,426,754
Long-term investments (Schedule 2)	3,736,086	2,615,488
	6,614,047	5,794,541
Liabilities		
Deferred revenue (Note 7)	267,917	250,000
Accounts payable and accrued liabilities	60,463	46,393
Payroll liabilities	18,504	35,476
Grants payable	4,571,770	4,350,518
	4,918,654	4,682,387
Net financial assets	1,695,393	1,112,154
Non-financial assets		
Tangible capital assets (Note 3)	47,003	24,682
Inventory	8,460	-
Prepaid expenses	23,479	20,344
	78,942	45,026
Accumulated surplus	$ 1,774,335	$ 1,157,180

Commitments (Schedule 3 and Notes 2(d) and 4)

(See accompanying notes to the financial statements)

Statement 2

SASKATCHEWAN HEALTH RESEARCH FOUNDATION
STATEMENT OF OPERATIONS
For the Year Ended March 31

	2010		2009
	Budget	Actual	Actual
	(Note 10)		(Note 12)
Revenue			
General Revenue Fund			
Ministry of Health	$ 6,296,000	$ 6,296,000	$ 6,113,000
Ministry of Advanced Education, Employment and Labour	400,000	448,083	300,000
Partnership revenue	20,000	3,000	42,985
Interest	120,000	153,110	185,416
Recoveries	20,000	242,602	398,391
Donations	-	-	58
Miscellaneous	2,000	2,133	2,472
Total revenue	6,858,000	7,144,928	7,042,322
Expense			
Research funding			
Saskatchewan Health Research Foundation programs	3,885,618	3,841,096	3,720,341
Partnership programs (Note 5)	1,300,000	1,282,671	1,383,548
Infrastructure partnerships	75,000	75,000	175,000
Research centres (Note 6)	-	-	500,000
Program support	170,350	159,012	177,988
Dissemination and promotion	361,510	354,511	249,917
Impact Analysis	150,328	129,540	106,844
Leadership and management			
Board	39,219	34,344	21,171
Administrative	752,179	651,599	578,833
Total expenses (Schedule 1)	6,734,204	6,527,773	6,913,642
Annual surplus	$ 123,796	617,155	128,680
Accumulated surplus, beginning of year		1,157,180	1,028,500
Accumulated surplus, end of year		$ 1,774,335	$ 1,157,180

(See accompanying notes to the financial statements)

Statement 3

SASKATCHEWAN HEALTH RESEARCH FOUNDATION
STATEMENT OF CHANGE IN NET FINANCIAL ASSETS
For the Year Ended March 31

	2010	2009
Annual surplus	$ 617,155	$ 128,680
Acquisition of tangible capital assets	(39,744)	(3,424)
Amortization of tangible capital assets	17,423	9,603
	(22,321)	6,179
Acquisiton of inventory	(8,460)	-
Acquisiton of prepaid expense	(60,979)	(36,360)
Use of prepaid expense	57,844	37,389
	(11,595)	1,029
Increase in net financial assets	583,239	135,888
Net financial assets, beginning of year	1,112,154	976,266
Net financial assets, end of year	$ 1,695,393	$ 1,112,154

(See accompanying notes to the financial statements)

Statement 4

SASKATCHEWAN HEALTH RESEARCH FOUNDATION
STATEMENT OF CASH FLOWS
For the Year Ended March 31

	2010	2009
Operating transactions		
Annual surplus	$ 617,155	$ 128,680
Non-cash items included in annual surplus:		
Amortization of tangible capital assets	17,423	9,603
Bond discount amortization	(87,905)	(128,727)
Net change in non-cash working capital items:		
Accrued interest receivable	(5,545)	(20,169)
Accounts receivable	25,816	4,484
Inventory	(8,460)	-
Prepaid expenses	(3,135)	1,029
Deferred revenue	17,917	100,000
Accounts payable and accrued liabilities	14,070	38,854
Payroll liabilities	(16,972)	18,691
Grants payable	221,252	170,283
Cash provided by operating transactions	791,616	322,728
Capital transactions		
Cash used to acquire tangible capital assets	(39,744)	(3,424)
Cash applied to capital transactions	(39,744)	(3,424)
Investing transactions		
Purchase of investments	(2,680,958)	(1,786,097)
Proceeds from disposal and redemption of investments	2,458,915	1,820,645
Cash (used by) provided by investing transactions	(222,043)	34,548
Increase in cash and cash equivalents	529,829	353,852
Cash and cash equivalents, beginning of year	672,390	318,538
Cash and cash equivalents, end of year	$ 1,202,219	$ 672,390

(See accompanying notes to the financial statements)

SASKATCHEWAN HEALTH RESEARCH FOUNDATION
NOTES TO THE FINANCIAL STATEMENTS
MARCH 31, 2010

1. Establishment of the Foundation

On January 31, 2003, *The Saskatchewan Health Research Foundation Act* (S.S. 2002, c.S-21.1) came into force establishing the Saskatchewan Health Research Foundation (Foundation). The Foundation is responsible for organizing, managing and allocating most provincial health research funding in Saskatchewan and for ensuring that supported research fits with the Province's health research priorities and leads to benefits for health and the health system in Saskatchewan. The Foundation is the lead agency on implementing the provincial *Health Research Strategy*.

2. Accounting Policies

Pursuant to standards established by the Public Sector Accounting Board (PSAB), the Foundation is classified as an "other government organization." The Foundation uses generally accepted accounting principles applicable to government. The following accounting principles are considered to be significant.

a) Revenue

The Foundation's main revenue for operations is contributions from the Ministry of Health – General Revenue Fund with other revenue coming from partnerships, interest and miscellaneous revenue. Contributions are unrestricted and are recognized in the year received.

Restricted contributions from the Ministry of Advanced Education, Employment and Labour are used for the Canadian Institutes of Health Research (CIHR) Regional Partnership Program (RPP) and the CIHR Partnerships for Health System Improvement Program (PHSI) (see note 5). These contributions are recognized in the year expenses are incurred.

b) Measurement uncertainty

The preparation of financial statements in accordance with PSAB accounting principles requires the Foundation's management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of commitments at the date of the financial statements and the reported amounts of revenue and expenses during the period. Actual results could differ from those estimates.

c) Tangible capital assets

The recognition and measurement of tangible capital assets is based on their service potential. Purchases of furniture and office equipment over $250 and computer hardware and software over $500 are recorded at cost as a capital asset. Purchases below these amounts are expensed as incurred. Amortization is recorded on a straight-line basis as follows:

Furniture	10 years
Office Equipment	5 years
Computer Hardware and Software	3 years
Leasehold Improvements	length of lease

Normal maintenance and repairs are expensed as incurred.

d) Research grants and awards expense

Grants and awards expense is recorded when eligibility has been determined and the grant and or award has been authorized. Awarded funds are sent to the recipients' home

d) Research grants and awards expense (cont'd)

institution to manage and disburse. Funds not spent during the term of a research grant are treated as a recovery in the year that this is determined.

Internally administered awards

The Foundation holds annual funding competitions through which applications are adjudicated by experts based on excellence and relevance. Terms vary and are often multi-year. For internally administered multi-year grants and awards, the Foundation assesses eligibility and provides authorization on a yearly basis (see Schedule 3, Schedule of Future Research Funding Commitments).

Externally administered awards

For some partnership programs, the Foundation's partner administers the grants and awards. For example, CIHR currently administers RPP and PHSI grants and awards. For externally administered multi-year grants and awards, the Foundation records the full amount of the expense in the year that authorization for funding is received from CIHR.

e) Investments

Investments are valued at amortized cost.

f) Basis of accounting

The financial statements are prepared using the accrual basis of accounting.

3. Tangible Capital Assets

	Furniture and Equipment	Leasehold Improvements	2010 Totals	2009 Totals
Opening cost	$ 76,393	$ 37,726	$ 114,119	$ 123,075
Additions during the year	28,622	11,122	39,744	3,424
Disposals during the year	(100)	-	(100)	(12,380)
Closing cost	104,915	48,848	153,763	114,119
Opening accumulated amortization	51,711	37,726	89,437	92,214
Amortization for the year	13,716	3,707	17,423	9,603
Disposals during the year	(100)	-	(100)	(12,380)
Closing accumulated amortization	65,327	41,433	106,760	89,437
Net book value of tangible capital assets	$ 39,588	$ 7,415	$ 47,003	$ 24,682

4. Lease Commitments

At March 31, 2010, the Foundation had the following lease commitments:

	2011	2012	2013	2014
Office lease	$ 77,145	$ 77,145	$ 35,358	$ -
Photocopier lease	3,817	3,181	-	-
Postage meter lease	926	926	926	154
	$ 81,888	$ 81,252	$ 36,284	$ 154

5. Partnerships

The Foundation periodically enters into funding partnerships, often spanning more than one year, to help achieve its goals and objectives. In 2010 the Foundation provided research funding through the following partnerships:

Saskatchewan – Canadian Institutes of Health Research (CIHR) Regional Partnership Program (RPP)

In a partnership that started in 1999 and has been extended to 2012-13 the Foundation provides funds to match funding from the CIHR-RPP on a 1:1 basis to support Saskatchewan researchers and research projects. The Foundation also received $250,000 from the Ministry of Advanced Education, Employment and Labour (from the Innovation and Science Fund) for this program.

Canadian Institutes of Health Research (CIHR) Partnerships for Health System Improvement Program (PHSI)

Since 2006, the Foundation and CIHR have been in partnership to provide funds to support teams of researchers and decision makers interested in conducting applied and policy-relevant health research useful to health system managers and/or policy makers and strengthening the Canadian health care system. Funding is matched on a 1:4 basis by the Foundation and CIHR respectively.In 2010, the Ministry of Advanced Education, Employment and Labour (from the Innovation and Science Fund) provided $150,000 for this program.

6. Research Centres

In 2008-09, the Foundation completed its final year of core funding to one remaining research centre, the Indigenous Peoples Health Research Centre. This completed the transition from centre funding commitments transferred from the Ministry of Health and the Health Services Utilization and Research Commission to a competitive team program approach.

7. Deferred Revenue

Since 2008, the Ministry of Advanced Education, Employment and Labour has provided $150,000 annually to the Foundation from Saskatchewan's Innovation and Science Fund to administer matching funds for the CIHR – PHSI grant program. In 2010 The Ministry of Health's Workforce Planning Branch provided $66,000 to support the creation of a Research Chair in Quality Improvement Science and Interprofessional Education at the University of Saskatchewan.

	2010	2009
Opening balance	$ 250,000	$ 150,000
Ministry of Advanced Education, Employment and Labour	150,000	150,000
Ministry of Health	66,000	
Grants expensed during the year	(198,083)	(50,000)
Ending balance	$ 267,917	$ 250,000

8. Related Party Transactions

Included in these financial statements are transactions with various Saskatchewan Crown Corporations, ministries, agencies, boards and commissions related to the Foundation by virtue of common control by the Government of Saskatchewan, and non-Crown corporations and enterprises subject to joint control or significant influence by the Government of Saskatchewan (collectively referred to as "related parties").

8. Related Party Transactions (cont'd)

Routine operating transactions with related parties are recorded at the agreed upon rates charged by those organizations and are settled on normal trade terms. These transactions and amounts outstanding at year-end are as follows:

	2010	2009
Recovery and miscellaneous revenue:		
University of Regina	$ -	$ 93
University of Saskatchewan	242,602	399,588
Other	-	120
Research grant, administrative and occupancy expenses:		
Capital Pension Plan - employee benefits	36,611	29,786
Saskatchewan Association of Health Organizations	1,500	4,590
Saskatchewan Opportunities Corporation – Innovation Place	148,659	87,084
Saskatoon Health Region	2,180	-
SaskTel	13,547	10,087
University of Regina	972,638	1,353,536
University of Saskatchewan	4,228,678	4,455,215
Other	1,897	1,876
Accounts payable and accrued liabilities	10,536	30,835
Grants payable	4,571,770	4,350,518
Accounts receivable	51	35,958

The Foundation pays Provincial Sales Tax to the Ministry of Finance on all its taxable purchases. Taxes paid are recorded as part of the cost of those purchases.

Other transactions with related parties and amounts due to or from them are described separately in these financial statements and the notes thereto.

9. Financial Instruments

The Foundation has the following financial instruments: accrued interest receivable, accounts receivable, investments, accounts payable, and grants payable. The following paragraphs disclose the significant aspects of these financial instruments. The Foundation has policies and procedures in place to mitigate the associated risks.

a) Significant terms and conditions

There are no significant terms and conditions associated with the financial instruments, other than investments, that may affect the amount, timing, and certainty of future cash flows. Significant terms and conditions for investments are described separately in these financial statements and the accompanying notes.

9. Financial Instruments (cont'd)

b) Interest rate risk

The Foundation is exposed to interest rate risk when the value of its financial instruments fluctuates due to changes in market interest rates. As the Foundation seldom disposes of investments prior to maturity, this risk is minimal.

The Foundation's receivables and payables are non-interest bearing. Due to the short-term nature of these, as well as cash and short-term investments, interest rate risk is minimal. As market interest rates fluctuate the market value of long-term investments moves in the opposite direction. This risk will affect the price the Foundation could sell the investments for prior to maturity.

c) Credit risk

The Foundation is exposed to credit risk from potential non-payment of accounts receivable or investment income and principal.

Most of the Foundation's receivables are from the provincial government; therefore the credit risk is minimal.

The Foundation's investments consist of provincial and federal government bonds, promissory notes, treasury bills and bankers acceptances with large Canadian banks. Therefore, credit risk for investments and related accrued interest receivable is minimal.

d) Fair value

For the following financial instruments, the carrying amounts approximate fair value due to their immediate or short-term nature:

Accrued interest receivable
Accounts receivable
Short-term investments
Accounts payable
Grants payable

The fair value of long-term investments is $3,736,086 (2009 - $2,631,257). The fair value is considered to approximate quoted market values.

10. Budget

The operating budget was approved by the Foundation's Board on April 8, 2009.

11. Pension Plan

The Foundation is a participating employer in the Capital Pension Plan, a defined contribution pension plan. Eligible employees make monthly contributions of 6% of gross salary with the Foundation contributing 6.45% of gross salary. The Foundation's financial obligation is limited to making required contributions. During the year, the Foundation's total contributions were $36,611 (2009 - $29,786).

12. Comparative Information

Certain prior year amounts have been reclassified to conform with the current year's presentation.

Schedule 1

SASKATCHEWAN HEALTH RESEARCH FOUNDATION
SCHEDULE OF EXPENSES BY OBJECT
For the Year Ended March 31

	2010		2009
	Budget	Actual	Actual
	(Note 10)		(Note 12)
Advertising and promotion	$ 112,372	$ 124,923	$ 100,610
Amortization	18,107	17,423	9,603
Board expenses	39,219	34,344	21,171
Employee benefits	127,907	130,804	102,255
Employee salaries	619,792	610,133	573,300
Grants and awards	5,260,618	5,198,767	5,778,889
Office expenses	82,350	63,680	60,049
Office space	152,760	123,594	87,084
Professional Fees	223,863	147,985	119,061
Publications	20,262	20,684	15,692
Review committee expenses	10,100	12,615	10,972
Travel and meetings	66,854	42,821	34,956
	$ 6,734,204	$ 6,527,773	$ 6,913,642

(See accompanying notes to the financial statements)

Schedule 2

SASKATCHEWAN HEALTH RESEARCH FOUNDATION
SCHEDULE OF INVESTMENTS
As at March 31, 2010

	MATURITY DATE	CARRYING VALUE	EFFECTIVE RATE
Cash and cash equivalents:			
Cash		$ 1,002,219	
Manulife Savings		100,000	
Renaissance Savings	28-Apr-2009	100,000	0.200%
		1,202,219	
Short-term investments:			
Ontario Hydro	11-Apr-2010	243,526	4.470%
Province of British Columbia	23-Aug-2010	233,857	3.570%
Maple Trust Company GIC	19-Nov-2010	100,000	4.750%
Montreal Trust Company GIC	19-Nov-2010	100,000	4.750%
Province of Ontario	2-Dec-2010	338,721	4.620%
Canadian Western Bank GIC	31-Mar-2011	100,000	2.350%
CIBC Full Service GIC	31-Mar-2011	100,000	2.330%
CIBC Morgages Inc GIC	31-Mar-2011	100,000	2.300%
CIBC Trust Corporation GIC	31-Mar-2011	100,000	2.300%
Manulife Bank of Canada GIC	31-Mar-2011	100,000	2.200%
National Trust Company GIC	31-Mar-2011	100,000	2.250%
		1,616,104	
Long-term investments:			
Province of Ontario	2-Jun-2011	238,996	3.690%
Province of Ontario	13-Jul-2011	253,826	1.410%
AGF Trust Company GIC	17-Jul-2011	100,000	2.050%
B2B Trust GIC	18-Jul-2011	100,000	2.050%
Equitable Trust GIC	18-Jul-2011	100,000	2.050%
ICIC Bank GIC	18-Jul-2011	100,000	1.800%
Pacific Western Bank GIC	18-Jul-2011	100,000	2.000%
Peoples Trust Company GIC	18-Jul-2011	100,000	1.750%
Ontario Hydro	18-Aug-2011	470,832	1.410%
Province of Manitoba	5-Sep-2011	249,278	1.480%
National Bank of Canada GIC	12-Sep-2011	100,000	4.730%
Laurentian Bank of Canada GIC	12-Sep-2011	100,000	4.720%
Saskatchewan Savings Bond	15-Jul-2012	200,000	4.200%
HSBC Bank Canada GIC	6-Dec-2012	100,000	4.900%
Laurentian Bank of Canada GIC	6-Dec-2012	100,000	4.875%
Ontario Hydro	6-Feb-2013	328,458	2.280%
Province of Ontario	7-Feb-2013	328,456	2.280%
Ontario Hydro	1-Apr-2013	466,240	2.390%
Province of Manitoba Allocation Notes	27-Sep-2013	200,000	
		3,736,086	
		$ 6,554,409	

(See accompanying notes to the financial statements)

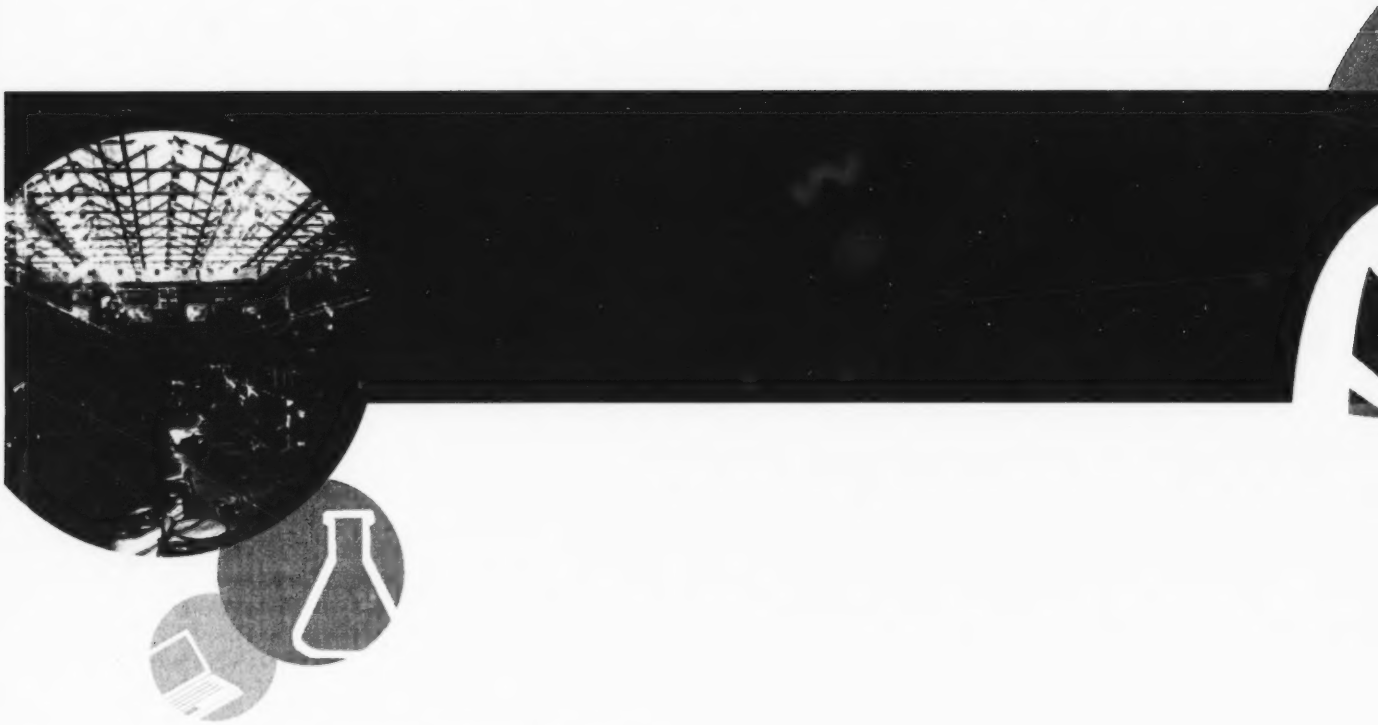
Schedule 3

SASKATCHEWAN HEALTH RESEARCH FOUNDATION
SCHEDULE OF FUTURE RESEARCH FUNDING COMMITMENTS
As at March 31, 2010

The Future Research Funding commitments at March 31, 2010 were as follows:
Note 2(d)

YEAR		SASKATCHEWAN HEALTH RESEARCH FOUNDATION PROGRAMS	TOTAL
2011	$	2,437,452	$ 2,437,452
2012		1,652,057	1,652,057
	$	4,089,509	$ 4,089,509

Click here to request a copy of Saskatchewan Health Research Foundation's 2010 Payee List.



Saskatchewan Health Research Foundation

253-111 Research Drive
Atrium Building
Innovation Place
Saskatoon, Saskatchewan S7N 3R2
Phone (306) 975-1680
Fax (306) 975-1688
info@shrf.ca
www.shrf.ca

SHRF
SASKATCHEWAN
HEALTH RESEARCH
FOUNDATION